VOLUME XVIII NUMBER 9

THE ELEMENTARY SCHOOL JOURNAL

CONTINUING "THE ELEMENTARY SCHOOL TEACHER"

MAY 1918

EDUCATIONAL NEWS AND EDITORIAL COMMENT

The following resolutions were unanimously passed by the National Education Commission on the National Emergency in Education at its session of April 12, 1918, at National Education Association headquarters in Washington, D.C.:

INSTRUCTION IN ENGLISH

The National Education Association Commission on the National Emergency in Education and Necessary Readjustment during and after the War, representing thousands of loyal and patriotic teachers, believes the practice of giving instruction to children in the common branches in a foreign tongue to be un-American and unpatriotic, and we believe that all instruction in the common branches for all children in every state in this union should be in the English language. We therefore recommend that the instruction in the common branches in both private and public schools in all states be given in the English language only, and every legitimate means, both state and federal, be used to bring about this result.

CO-ORDINATION OF PATRIOTIC WORK

The National Education Association Commission on the National Emergency in Education and Necessary Readjustment during and after the War, representing 600,000 public-school teachers and the interests of approximately 22,000,000 children, and recognizing the power and influence of the teachers and the schools in training in patriotism, desires to co-operate with the federal government in every reasonable way to help win the war. On account of the great variety of propagandas and activities federal agencies are requesting

the schools to encourage and to teach, the Commission feels that the schools are not being used as economically, as wisely, and as efficiently as possible. The Commission therefore requests that the National Council of Defense, the various federal departments, divisions, bureaus, commissions, and committees provide at once a clearing house and co-ordinating agency for those propagandas and activities that they wish the schools to present; that this agency be empowered and directed to prepare this matter in a form suitable for use in the schools; that this agency be authorized to arrange these materials in the order of their priority; and further, that the materials whose priority is thus determined be sent to the proper educational authorities of each state for final distribution.

Schools in War Time

The Bureau of Education issued early in April a pamphlet which deals in a comprehensive way with the matter referred to in its title, *Government Policies Involving the Schools in War Time*. This pamphlet should be in the hands of every school officer, especially of members of boards of education. It is a statement signed by Secretaries Baker, Daniels, Houston, Wilson, and Lane and by the Commissioners of Civil Service and Education. It cannot be quoted here in full, but the following extracts indicate something of its contents:

The entire spirit of the Administration in Washington is, and has been from the beginning, that the war should in no way be used as an excuse for giving the children of the country any less education, in quantity or quality, than they otherwise would have had, but, on the contrary, that the schools should do everything possible to increase their efficiency, to the end that the children now in the schools may at the conclusion of their course be even better qualified than ever before to take up the duties and responsibilities of life. . . . .

Aside from casual work, chores, and the like, which might be done outside of school hours, the labor of boys under fourteen years of age is not a vital factor on the farm. City boys, without farm experience, are not generally useful under sixteen years of age. . . . .

So far as the Army and Navy are concerned, there is nothing more important that the schools can do than to keep going at full capacity, and at the same time to emphasize in every possible way their work in physical education. High-school boys will render the best service of which they are capable by remaining in school until completion of the high-school course. . . . .

There appears to be nothing in the present or prospective war emergency to justify curtailment in any respect of the sessions of the elementary schools, or of the education of boys and girls under fourteen years of age, and nothing

which should serve as an excuse for interference with the progressive development of the school system. . . . .

In general, it is believed that wherever school boards can find the means the present emergency is an opportune time for readjusting the schools on an all-year-round basis, with a school year of forty-eight weeks, divided into four quarters of twelve weeks each. The schools would then be in continuous operation, but individual teachers and pupils would have the option of taking one quarter off at prearranged periods for needed change. . . . .

Boys and girls should be urged, as a patriotic duty, to remain in school to the completion of the high-school course, and in increasing numbers to enter upon college and university courses, especially in technical and scientific lines, and normal-school courses, to meet the great need for trained men and women.

Gardening a Patriotic Duty

The Bureau of Education has undertaken a campaign to promote gardening among school boys and girls. The campaign is introduced by a circular which opens with a letter from the President of the United States as follows:

My dear Mr. Secretary:

I sincerely hope that you may be successful through the Bureau of Education in arousing the interest of teachers and children in the schools of the United States in the cultivation of home gardens. Every boy and girl who really sees what the home garden may mean will, I am sure, enter into the purpose with high spirits, because I am sure they would all like to feel that they are in fact fighting in France by joining the home garden army. They know that America has undertaken to send meat and flour and wheat and other foods for the support of the soldiers who are doing the fighting, for the men and women who are making the munitions, and for the boys and girls of Western Europe, and that we must also feed ourselves while we are carrying on this war. The movement to establish gardens, therefore, and to have the children work in them is just as real and patriotic an effort as the building of ships or the firing of cannon. I hope that this spring every school will have a regiment in the Volunteer War Garden Army.

Cordially and sincerely yours,

(*Signed*) WOODROW WILSON

HON. FRANKLIN K. LANE
Secretary of the Interior

It is Secretary Lane's idea that is being worked out through Commissioner Claxton of the Bureau of Education to have five million boys and girls of the schools in every city, town, and village in the country, captained by forty thousand teachers, produce as nearly as possible all of the vegetables, small fruits, and eggs for their home consumption.

To the extent that each district is able to supply itself with these food products, the railways will be relieved of the burden of transporting them, and the Allies of the United States in Europe and our own soldiers on the battle front will get that much more of the food of which they are in need.

School officers should get into communication with the Bureau if they are willing to help in this campaign.

Teachers' Councils

Superintendents of schools who are wise secure the advice of their teachers on all school matters. It would be possible to secure, and record as news, examples of discord and incoordination resulting from the effort of unwise superintendents to ignore or oppose teachers and their organizations. That would be, however, merely to make it plain that democracy is not yet in full running order in all school systems.

It is a more cheerful task to exhibit, in such detail that the example may be followed, the new organization which has been set up under the suggestion of Superintendent Spaulding by the teachers of Cleveland. The following is the full constitution of the new organization:

CONSTITUTION OF THE CLEVELAND EDUCATIONAL COUNCIL

ARTICLE I—NAME

The name of the organization shall be the Cleveland Educational Council.

ARTICLE II—OBJECT

The purpose of this Council shall be advisory. It shall hold conferences with the Superintendent of Instruction upon questions pertaining to the public schools of Cleveland. It shall give oral and written advice to the Superintendent whenever requested by him.

ARTICLE III—MEMBERSHIP

The membership of the Council shall consist of twenty-six representatives selected as follows: 2 from the principals of the city, 1 from the normal school, 3 from the senior high schools (provided one at least shall be from the academic and one at least from the vocational schools), 2 from the junior high schools, 1 from the eighth grade and tutors, 1 from the seventh grade, 2 from the sixth grade, 2 from the fifth grade, 2 from the fourth grade, 2 from the third grade, 2 from the second grade, 3 from the first grade, 1 from the kindergarten, 2 from the special schools and special teachers.

ARTICLE IV—ELECTION OF MEMBERS

SECTION 1. *Nominations.*—On the call of the Superintendent within the third week of September, each grade or division, according to art. iii, of each school in the respective supervisory districts, northeast, southeast, northwest, southwest, shall send one representative to a district meeting of grade or division which shall choose a chairman and secretary, and which shall nominate by ballot two representatives to be voted on at the annual election in October, provided that the Normal School shall make two nominations from its own membership. A majority vote shall nominate.

SEC. 2. *Preparation of ballot.*—Immediately after the meeting noted in sec. 1 or within two days thereafter, the four chairmen and four secretaries of the four district meetings of each grade or division shall meet at the Board of Education Rooms and prepare a ballot of the nominees, stating on each ballot how many are to be elected, and shall send sufficient number of ballots to each principal.

They shall send the list of their own names to the secretary of the Superintendent.

SEC. 3. *Election.*—The principal, during the first week of October, shall give to each teacher of each grade or division the ballot. The teacher shall mark her ballot according to her choice, and return the same to the principal, who shall send the entire set to the secretary of the Superintendent, Board of Education Rooms, provided that the Normal School shall elect by ballot its own representative, during the first week of October.

SEC. 4. *Canvassing Board.*—The four chairmen and four secretaries noted in sec. 2 shall constitute a canvassing board. They shall meet at the Board of Education within the first two weeks of October on the notification of the secretary of the Superintendent and canvass the votes, certifying to the Superintendent the names of those elected, and the name and number of votes for each of all candidates.

SEC. 5. The candidate receiving the largest number of votes shall be declared elected. When more than one representative is to be chosen, then the required number receiving the largest number of votes shall be declared elected. In case of a vacancy, the person in the grade or division having received the next highest vote shall be chosen.

SEC. 6 The election shall be held annually in October provided that the first nominations and elections shall be held in January 1918.

SEC. 7. At the first meeting of the Council the members shall draw lots for term of service, one-half of the lots being for one year, and one-half for two years, provided that at the drawing at the first meeting the one year members shall serve until October 1918, and the two year members until October 1919.

Twenty-six ballots shall be made for the drawing, thirteen marked "one year" and thirteen marked "two years."

ARTICLE V—TERM OF OFFICE

Except as stated in sec. 6, art. iv, the term of office of members of the Council shall be for two years or until successor is elected.

ARTICLE VI—OFFICERS

The officers of the Council shall be a chairman, vice-chairman and a secretary elected by the members at the first meeting of the school year.

ARTICLE VII

The regular meetings of the Council shall be held during the second month of each semester at such time and place as the Superintendent shall direct.

A special meeting may be called at any time by the Superintendent or on written request of five members of the Council.

ARTICLE VIII—DUTIES OF MEMBERS

The duties of the members shall be in accordance with art. ii.

ARTICLE IX—AMENDMENTS

Amendments may be made to this constitution upon a recommendation by a majority vote of the entire Council provided a written notice of amendment be sent each member two weeks previous to the vote on the recommendation and provided a majority of all teachers voting on the recommendation ratify the said amendment.

The following clipping from the *Telegraph* of Portland, Oregon, indicates that the question of state publication of textbooks is being discussed in ever-widening circles:

School Textbooks and the State

Free textbooks are contemplated in a constitutional amendment proposed for initiation by W. B. McKinney, of this city, which is now ready for circulation among the voters for signatures.

The amendment authorizes the appointment or election of a state board of education, and vests the board with power to adopt a uniform series of textbooks "for use in the day and evening elementary schools throughout the state." The board may cause such textbooks to be printed by the state printer, but "wherever and however" printed they are to be furnished and distributed free by the state to all children attending the day and evening elementary schools under such conditions as the legislature shall prescribe. The textbooks adopted shall continue in use not less than four years without any change or alteration which shall necessitate the furnishing of new books to pupils.

For several years the free textbook question has been an issue in the state, and if the proposed amendment obtains enough signatures to put it on the ballot it is expected that it will precipitate a tropical fight.

Printing in New York Schools

One of the best manual and technical arts for elementary schools is printing. The following statement taken from the *New York Globe* shows that this fact is being recognized in New York and also gives some of the reasons:

More boys and girls in the public schools are to have the opportunity of studying and working in school printing shops. The Board of Education has authorized the installation of the necessary equipment in seven elementary school buildings—Nos. 10, 23, 37, 51, 52, and 55 Bronx, and 23 Brooklyn. It is not the purpose of this instruction in printing to prepare the boys and girls to become printers, but to help out by practical work the teaching of English. The decision to provide these printing rooms was reached by the Board of Education after it had received from Associate Superintendent Meleney a report upon the successful operation of the printing shops in thirteen elementary and prevocational schools, supplemented by the testimony of the principals and district superintendents to the effect that they believe the printing rooms were of great educational value and were to be preferred to a regular classroom.

When the proposal to instal the printing shops first came before the new board the question of cost and of the need of the rooms for classroom purposes was urged with such force that it was decided that the equipment should be held for use in junior high schools and that the rooms should be retained for classroom purposes. Meanwhile the contract for the furnishing of the equipment had been signed by the controller, and it was necessary for the board to decide where the equipment was to be delivered. After a thorough investigation it was decided to instal the shops in five of the schools for which they were originally planned and to transfer two to other buildings. At the meeting of the board today such distribution of the equipment will be ordered.

The inquiry made by Associate Superintendent Meleney covered the printing shops in the following schools—72 and 109 Manhattan; 5, 50, 66, 150, and 158 Brooklyn, and 28, 42, 43, 44, 45, and 55 Bronx. It disclosed a number of interesting facts. These shops are in use every hour that the schools are in session. The number of pupils under instruction at any one time ranges from fourteen to forty. These children are in grades from 5A to 9B. Generally the instruction is given by a substitute teacher.

All of the district superintendents and principals who had experience with such shops regarded the educational value of the work highly and reported keen interest in the work on the part of the pupils. The shops also render valuable service in printing report cards, programs, mottoes, cards, etc., for use by the school. Considerable work has also been done for the Department

of Education. From their observation and experience they all declared that they would urge the equipment of a printing shop if the school did not have one, even were it necessary to remodel a regular classroom. In few cases did the principals report that a regular classroom in place of a printing shop would relieve the school of part time or effectively increase the school accommodations. The report made by Superintendent Meleney was an effective presentation of the value of the printing shop as part of the equipment of elementary school buildings. The added cost of providing such a shop will for the present prevent the installation of such shops in more elementary school buildings.

A Spelling List

For some months a committee of elementary-school principals in Kansas City has been working on a spelling list for the schools of that city. The list was recently sent out to all the teachers for use. The letter which accompanied the list is given in full, because it contains in very striking form a concrete example of a new type of school work. The time has come when teachers in every city will have to study their problems and work out solutions, not be satisfied to take crude, abstract material prepared by some distant textbook-maker who does not explain himself and probably does not know how to do so.

The letter is as follows:

To Principals and Teachers:

The Spelling Committee herewith submits in mimeograph form a suggested list of words for each grade. The list has been compiled as carefully as time would permit. All members of the committee realize that many imperfections will be found in this list. However, we feel that it has many advantages. Among them are the following:

1. It emphasizes the common words.
2. It is composed of words actually used and missed by pupils.
3. It makes the work for each grade definite.
4. The number of words is small and can be taught to practically all pupils.
5. It tends to unify the spelling work of the city.
6. It meets the objection of business men that pupils fail to learn to spell the common words.
7. It saves time by omitting words beyond the needs of pupils.
8. It gives a standard for each grade—100 per cent on the grade list.

The pupil of the elementary school who masters the 3,000 words in this list will be able to spell 98 per cent to 99 per cent of all the words he will need in life.

The most difficult part of the work was the placing of each word in the proper grade. Doubtless many errors have been made in doing this. However, words were placed in the grades in which they were missed. A word was usually put in the lowest grade in which it was reported missed three or more

times. Sometimes, for good reasons, a word was put one or two grades higher, and in the case of a word reported missed fewer than fifteen times it was usually located in the lowest grade in which 20 per cent of the misses were reported.

Last year about 500 additional words were supplied by the teachers. We shall be glad to have teachers continue to keep lists of words missed by pupils in the writing of "spontaneous" compositions but not found in this list. Such words missed by pupils should be added to the general city list. However, unusual words forced temporarily upon pupils by special reproduction exercises and by examinations are not desired.

The printed list sent out a year ago shows the number of times each word was missed in each grade and will be very helpful in indicating the words that should be emphasized.

This list is not intended to displace entirely the spelling book. Selected exercises should be taken from the spelling book, especially for study of and drill on sounds, study of prefixes and suffixes, and occasional spelling exercises. A few easy word families are given for drill purposes only in grades one and two.

The number of words in the second grade may seem large but the reasons for this list are:

1. Mr. Jones found in his study that second-grade pupils use, in their written work, a total of 1,927 different words and that the average writing vocabulary of a second-grade pupil is 521 words; of a third-grade pupil, 908 words.

2. Pupils begin to do written composition work in the third grade.

3. Unless pupils know how to spell the words that they will use in their written composition work, the habit of misspelling words is established.

4. In view of the preceding facts it seems that a third-grade pupil should know how to spell about 1,000 common words before he does much written composition work. Hence, it is necessary to teach a large number of words in the second grade.

5. The committee feels that the teaching of the correct spelling of six or seven hundred words in the second grade is second in importance only to the teaching of reading in that grade.

The following editorial from the *Philadelphia Telegraph* is typical of the kind of statement which is appearing in many of the newspapers of the country:

National Participation in the Control of Education

There will come an extensive reorganization of the American educational system. The war has stimulated the constructive criticism which will bear this excellent fruit. We are thinking nationally as we never did before. Educators are thinking nationally as they never did before. National efficiency has received new recognition as a virtue greatly to be desired and hitherto greatly neglected.

of Education. From their observation and experience they all declared that they would urge the equipment of a printing shop if the school did not have one, even were it necessary to remodel a regular classroom. In few cases did the principals report that a regular classroom in place of a printing shop would relieve the school of part time or effectively increase the school accommodations. The report made by Superintendent Meleney was an effective presentation of the value of the printing shop as part of the equipment of elementary school buildings. The added cost of providing such a shop will for the present prevent the installation of such shops in more elementary school buildings.

A Spelling List

For some months a committee of elementary-school principals in Kansas City has been working on a spelling list for the schools of that city. The list was recently sent out to all the teachers for use. The letter which accompanied the list is given in full, because it contains in very striking form a concrete example of a new type of school work. The time has come when teachers in every city will have to study their problems and work out solutions, not be satisfied to take crude, abstract material prepared by some distant textbook-maker who does not explain himself and probably does not know how to do so.

The letter is as follows:

To Principals and Teachers:

The Spelling Committee herewith submits in mimeograph form a suggested list of words for each grade. The list has been compiled as carefully as time would permit. All members of the committee realize that many imperfections will be found in this list. However, we feel that it has many advantages. Among them are the following:

1. It emphasizes the common words.
2. It is composed of words actually used and missed by pupils.
3. It makes the work for each grade definite.
4. The number of words is small and can be taught to practically all pupils.
5. It tends to unify the spelling work of the city.
6. It meets the objection of business men that pupils fail to learn to spell the common words.
7. It saves time by omitting words beyond the needs of pupils.
8. It gives a standard for each grade—100 per cent on the grade list.

The pupil of the elementary school who masters the 3,000 words in this list will be able to spell 98 per cent to 99 per cent of all the words he will need in life.

The most difficult part of the work was the placing of each word in the proper grade. Doubtless many errors have been made in doing this. However, words were placed in the grades in which they were missed. A word was usually put in the lowest grade in which it was reported missed three or more

times. Sometimes, for good reasons, a word was put one or two grades higher, and in the case of a word reported missed fewer than fifteen times it was usually located in the lowest grade in which 20 per cent of the misses were reported.

Last year about 500 additional words were supplied by the teachers. We shall be glad to have teachers continue to keep lists of words missed by pupils in the writing of "spontaneous" compositions but not found in this list. Such words missed by pupils should be added to the general city list. However, unusual words forced temporarily upon pupils by special reproduction exercises and by examinations are not desired.

The printed list sent out a year ago shows the number of times each word was missed in each grade and will be very helpful in indicating the words that should be emphasized.

This list is not intended to displace entirely the spelling book. Selected exercises should be taken from the spelling book, especially for study of and drill on sounds, study of prefixes and suffixes, and occasional spelling exercises. A few easy word families are given for drill purposes only in grades one and two.

The number of words in the second grade may seem large but the reasons for this list are:

1. Mr. Jones found in his study that second-grade pupils use, in their written work, a total of 1,927 different words and that the average writing vocabulary of a second-grade pupil is 521 words; of a third-grade pupil, 908 words.

2. Pupils begin to do written composition work in the third grade.

3. Unless pupils know how to spell the words that they will use in their written composition work, the habit of misspelling words is established.

4. In view of the preceding facts it seems that a third-grade pupil should know how to spell about 1,000 common words before he does much written composition work. Hence, it is necessary to teach a large number of words in the second grade.

5. The committee feels that the teaching of the correct spelling of six or seven hundred words in the second grade is second in importance only to the teaching of reading in that grade.

The following editorial from the *Philadelphia Telegraph* is typical of the kind of statement which is appearing in many of the newspapers of the country:

National Participation in the Control of Education

There will come an extensive reorganization of the American educational system. The war has stimulated the constructive criticism which will bear this excellent fruit. We are thinking nationally as we never did before. Educators are thinking nationally as they never did before. National efficiency has received new recognition as a virtue greatly to be desired and hitherto greatly neglected.

The chief agency in its promotion is undoubtedly the school. But it fails to perform the full national service of which it is capable because of lack of a national policy. The execution of a national policy depends on co-ordination.

In order to co-ordinate the effort and activities of the schools of the country, and to put in force and effect a definite, self-consistent policy, it is not necessary to nationalize the schools. It is not necessary, desirable, or possible to reduce the schools to a dead level of uniformity. The schools will and should remain under local control. They must be kept adaptable to local conditions, and opportunity must be left for the schools of a city or a state to compete with the schools of another city or state in one thing, and that one thing is service.

The need is for such co-ordination and co-operation, under federal aid and encouragement and federal leadership, as will insure, not mere equality of schools, but rather equality of educational opportunity for all the boys and girls in all parts of the country, and, from another point of view, equality of educational results. Equality of opportunity is the essence of democracy, and education is its bulwark and safeguard. Nor is the purpose to hold the schools down to the specified standards that ought to be established, but to hold them up to a nation-wide par.

Abdication of state or municipal authority is not required. The fifteenth amendment, or the prospective Susan B. Anthony amendment, does not deprive the states of the right of prescribing the qualifications of voters. But this is not a matter of changing the federal Constitution, though one of the speakers at Atlantic City points out that the instrument, surprisingly enough, contains not a single word about education. A national policy in education does not depend on the Constitution.

The way to have a national policy is to have it. The first step is to formulate it—to determine certain minimum standards. The first step seems to have been taken in the twelve recommendations issued by the Department of the Interior. They are, however, tentative and incomplete. When further developed they will serve as a standard of measurement for the schools of state and local aims. They need not and should not be numerous and detailed.

For the development and promulgation of a national policy in education there is need of reorganizing the office of the Commissioner of Education, enlarging its work and raising its rank. At present the functions of the Commissioner are little more than those of an official reporter. He should be intrusted with the task of nationalizing educational policy and co-ordinating educational effort. This is not his job at present. The interest that the nation has in education, an interest certainly as great and perhaps greater than that of any locality within the nation, is not yet fully appreciated.

It may be said that minimum standards will be useless if there is no compulsion about them. If they are well chosen they will serve as an incentive and make an appeal to local pride and self-respect. Again, they can be made the

basis of propaganda. Further, the government can promote their observance by withholding financial aid from states where the requirements are not met and by offering such aid to states which measure up to the standards.

The effort to teach somewhat more explicitly than in the past the lessons of patriotism is illustrated in the following editorial from the Chicago Evening Post:

Lessons in Patriotism

They had a neighborhood patriotic rally at the Waters School the other night. For more than an hour the boys and girls entertained a big gathering of parents and friends. The thrift stamps, Liberty bonds, the Red Cross and other channels of war help were advocated by youthful speakers. A scout, who claimed to be only a "two-minute man," and who was scarcely bigger than a minute, made a brief address on the meaning of the war that was worth scores of longer and more labored adult speeches we have heard.

But the crowning feature of the program was presented by a group of boys and girls every one of whom had been born under some other flag than Old Glory. Italy, Roumania, Armenia, Greece, Sweden, Scotland, England, Canada, Germany and Austria were all represented. Each youngster carried the Stars and Stripes; each declared the country of his birth—or her birth in most instances—and each avowed a new allegiance to the flag of America.

It was a stirring spectacle, and the generosity of the audience was finely shown when the little German-born maiden, a tiny creature of rare childlike beauty, in almost baby prattle declared her love for the land of her adoption. The applause was greater and more prolonged than for any other of the juvenile speakers. And back in the audience a proud mother and father joined with manifest sincerity and heartiness in cheering the wee patriot.

It is impossible to overestimate the value to America of such gatherings as this. We hope they are being held everywhere throughout the land. The public school is a great melting pot. Its power to promote Americanism is unlimited. The Waters School is promoting intelligent Americanism. The note of this meeting was not the narrow patriotic note; not the note of brag and spreadeagleism; it was the note of love for America because America is the friend of freedom, the note of a patriotism that seeks its highest expression in service.

THE TYPICAL TEACHING CONDITIONS OF THE FACULTIES OF SOUTHERN NORMAL SCHOOLS

HANOR A. WEBB
George Peabody College for Teachers

The organization and administration of schools are often subject to criticism, both from within and from without, not based on accurate knowledge of conditions. Of this type of criticism southern normal schools have had their share. The writer himself, as instructor for several years in such a school, possessed a vague feeling that there might be various inequalities and inconsistencies in the circumstances under which he and his colleagues worked, especially as compared with conditions in other normals. Consequently he welcomed the opportunity to determine with much definiteness the typical teaching conditions of these schools which was furnished by data obtained in 1916 from 15 state normal schools in the South as follows: Florence, Ala.; Livingston, Ala.; Troy, Ala.; Conway, Ark.; Natchitoches, La.; Towson, Md.; Cape Girardeau, Mo.; Springfield, Mo.; Greenville, N.C.; Rock Hill, S.C.; Johnson City, Tenn.; Murfreesboro, Tenn.; Huntsville, Tex.; San Marcos, Tex.; Farmville, Va.[1]

The determination of medians for hours, size of classes, salaries, etc., furnishes a basis which may be considered as typical of southern normal schools, and it is reasonable to assert that extreme variations from these values indicate improper conditions. Conclusions concerning two other important questions may also be drawn from these medians—whether there is any discrimination

[1] Secured through a questionnaire sent out by Superintendent A. E. Phillips, Marksville, Louisiana, then a graduate student working with Dr. Carter Alexander, department of school administration, George Peabody College for Teachers. These data were used by them in the calculation of costs of instruction in southern normal schools (see *Elementary School Journal* [May, 1917], pp. 650–56). The present study, therefore, is in a sense a by-product of their joint work.

for or against women in the faculties, and whether work done under normal-school conditions should be acceptable for credit in colleges and universities.

I. RELATION OF TEACHERS TO STUDENTS

1. *Sex of teachers in southern normal schools.*—In the schools under consideration (Table I) there are 391 instructors, 139 men (47.8 per cent) and 152 women (52.2 per cent). There are more

TABLE I

NUMBER AND SEX OF INSTRUCTORS IN SOUTHERN NORMAL SCHOOLS, BY SUBJECTS, FALL OF 1916*

SUBJECT	TOTAL NO. OF INSTRUCTORS	MEN		WOMEN	
		Number	Percentage	Number	Percentage
English	42	17	40.5	25	59.5
Mathematics	39	21	53.8	18	46.2
History	29	16	55.2	13	44.8
Education	28	24	85.7	4	14.3
Home Economics	27	0	0	27	100.0
Physics and chemistry	18	15	83.3	3	16.7
Drawing and penmanship	17	1	5.9	16	94.1
Latin	14	9	64.3	5	35.7
Biology	12	8	66.7	4	33.3
Agriculture	12	11	91.7	1	8.3
Manual training	11	9	81.8	2	18.2
Music	11	2	18.2	9	81.8
Physical training	10	2	20.0	8	80.0
Modern language	8	2	25.0	6	75.0
Reading	8	0	0	8	100.0
Geography	5	2	40.0	3	60.0

* Instructors are considered as teaching in those subjects in which most of their work is done. The data on supervisors of practice work, critic teachers, etc., revealed such a variety of conditions that it was impossible to make accurate tabulation or interpretation.

men teaching in 8 subjects: agriculture, biology, education, history, Latin, manual training, mathematics, and physics and chemistry. There are more women teaching in 8 subjects: drawing and penmanship, English, geography, home economics, modern language, music, physical training, and reading. Men constitute 69.3 per cent of the teaching force of the subjects in which they exceed, and women (excluding home economics and reading, in which there are no men) constitute 72.0 per cent of the force in their subjects. Thus, with the exception of two subjects, the

instruction in southern normal schools is almost equally divided between men and women. The men exceed in the typical "science subjects" except home economics, and in the typical "liberal-arts subjects" except English and modern language. Women exceed in all of the lighter "special" subjects.

2. *Number of students per teacher.*—The typical (median) teacher in any subject has on his or her class roll the number of students indicated in Table II. Such figures do not represent the teaching load of instructors, which is more properly expressed by some combination of classes and teaching periods per week. They do furnish an indication of the breadth to which each subject extends its separate influence, and in the case of electives, which usually have but one instructor to a department, a fair comparison of their popularity.

TABLE II

NUMBER OF STUDENTS ON CLASS ROLL OF THE TYPICAL (MEDIAN) INSTRUCTOR IN EACH SUBJECT IN 15 SOUTHERN NORMAL SCHOOLS, FALL OF 1916

Subject	Number of Students on Median Instructor's Roll	Subject	Number of Students on Median Instructor's Roll
Physical training	270.5	Drawing and penmanship	113.0
Music	151.0	Mathematics	88.0
Education	149.0	Modern language	79.5
Reading	140.5	Geography	70.0
English	129.5	Home economics	67.0
History	123.0	Agriculture	62.5
Biology	116.5	Manual training	62.0
Physics and chemistry	115.5	Latin	54.5

In 8 subjects the typical man teacher has more students on his class roll than the typical woman teacher in that subject. Women have the larger class rolls in the other 8 subjects. For all teachers, irrespective of subjects, the typical man has 100 names on his roll and the typical woman has 98 names. There is no discrimination by sex apparent. These medians were obtained by a more minute study of the data from which Table II was derived.

3. *Ratio of equivalence in the teaching staffs by subjects.*—The different subjects are by no means equally staffed with instructors, on a basis of a unit number of students. Where a given subject

has ten teachers for a certain number of students, other subjects have more or less. Table III shows the rank of these subjects and their ratio of equivalence, first, to ten teachers of English (any other subject might have been chosen), and second, to the median subject, here imaginary, of this rank order.

TABLE III

RATIO OF EQUIVALENCE IN THE STAFFS OF SUBJECTS

SUBJECT	RATIO OF EQUIVALENCE TO TEN INSTRUCTORS*	
	Of English	Of the Median Subject
Mathematics	13.7	26.6
Home economics	12.4	24.2
English	10.0	19.5
Latin	7.9	15.8
History	7.3	14.1
Agriculture	5.9	11.5
Education	5.8	11.3
Manual training	5.5	10.6
Median subject	.....	10.0
Physics and chemistry	4.8	9.4
Drawing and penmanship	4.6	9.0
Biology	3.2	6.2
Modern language	3.1	6.0
Music	2.2	4.4
Geography	1.9	4.3
Reading	1.8	3.4
Physical training	1.1	2.2

*These ratios of equivalence have been calcualted by the operation

$$\frac{\text{number of teachers in a certain subject}}{\text{number of teachers in English}} \text{ divided by } \frac{\text{median number of students in a certain subject}}{\text{median number of students in English}}$$

If the two subjects should have the same relative number of teachers and students, the ratio of equivalence would be 1. To express the relationship in terms of at least one teacher per subject, 10 is chosen as the base in this table.

A high rank in this table indicates a general adequacy of instructors in that subject. Uniformity, however, could not reasonably be expected—for example, a much larger number of mathematics teachers will obviously be required for any unit number of students than would be necessary for physical training.

II. THE TEACHING LOAD

1. *Length of recitation periods.*—Forty-five-minute periods are the prevailing type, although five schools devote 50 minutes and two schools 55 minutes to their recitations. Since the median number of hours per week for instructors under 45-, 50-, and 55-minute systems is respectively 20, 20, and 18 hours, there is apparently little allowance made for variations in the period lengths.

2. *Instructor's hours per week, by subjects.*—The median number of hours per week for instructors in the different subjects remains close to 20. The laboratory subjects are grouped (Table IV) with

TABLE IV

THE TEACHING LOAD

SUBJECT*	MEDIAN NUMBER OF PERIODS PER WEEK FOR INSTRUCTORS			MEDIAN NUMBER OF CLASSES PER INSTRUCTOR	REPETITIONS, PERCENTAGE OF CLASSES	MEDIAN NUMBER OF PUPILS PER CLASS
	All	Men	Women			
Manual training	26	29	21.5	5	0	10–20
Home economics	24	0	24	4	15.5	10–20
Biology	23	23	23	5	24.1	20–30
Physics and chemistry	22.5	22	24	4	20.0	20–30
Drawing and penmanship	22	15	22	6	12.5	20–30
Modern language	20	21	20	5	2.5	10–20
English	20	20	20	5	24.7	20–30
Music	20	21	20	6	0	20–30
Education	19.5	19.5	18	4	10.5	30–40
Physical training	19	17.5	19	8	(?)†	30–40
Latin	18.5	17.5	19	4	8.0	10–20
Reading	18.5	0	18.5	4.5	36.6	20–30
Geography	18	18	22	4	11.1	20–30
Mathematics	18	20	16.5	4	18.1	20–30
History	17	17	18	5	18.2	20–30
Agriculture	14	14	26	3	11.6	10–20

* Subjects ranked according to the median number of periods per week for their instructors.

† It was impossible to determine from the data the amount of repetition on the physical-training classes.

slightly higher medians, but their system of double laboratory periods, for which actual time was counted,[1] offers an obvious explanation. The only subject in which the number of teaching

[1] See note concerning "student clock hours" in Capen, "Recent Movements in College and University Administration," *U.S. Bureau of Education, Bulletin 46* (1916), p. 20.

hours of instructors is appreciably below the median is agriculture, which demonstrates the fact that allowance is uniformly made for the duties of farm and field in this department.

The median number of classes for men and women, irrespective of subjects, is 20 in each case, thus demonstrating that the loads are not essentially different because of sex.

3. *Number of classes per instructor.*—Four or five classes per instructor is evidently considered a proper distribution of effort. The three specialties, physical training, music, and drawing and penmanship, are grouped with larger numbers, but the lighter burden of outside preparation for the daily instruction in these subjects is evidently considered as a justification for more classes.[1] The allowance made for the outside duties of instructors in agriculture is again noticed.

4. *Repetition of classes.*—Repetition of classes in all subjects constitutes a median of 5.75 per cent for men and 19.0 per cent for women, showing a tendency in most subjects to give the sectioned classes to the women of the department. The subject of reading leads with 36.6 per cent of repetitions, and English comes second with 24.4 per cent.

5. *Size of classes.*—The median number of pupils per class in various subjects is typically between 20 and 30. This shows a standard in most excellent conformity with the Southern Association of Colleges and Preparatory Schools, recognizing 30 pupils, and the North Central Association of Colleges and Secondary Schools, recommending 25 pupils, as the maximum number permissible in a class. It is considerably lower than the Carnegie Foundation's suggested unit class of 36.[2]

The variations from this median of 20–30 students are easily explained in certain subjects: an instructor in physical training is in no way embarrassed by sections of 30–40 individuals; in the purely elective subjects smaller units of from 10–20 are to be expected; but the writer sees no satisfactory explanation of the large median of 30–40 students in the education classes. We

[1] Note these subjects in *Curricula Designed for the Professional Preparation of Teachers for American Public Schools*, Carnegie Foundation, February, 1917.

[2] *Ibid.*, § 3.

observe that the typical education teacher has only 4 classes, as compared with the 5 classes of English, history, and some other subjects. The excess becomes more marked upon comparing the number of large groups in these same three subjects, for in the fifteen schools studied, of classes containing more than fifty students education has 23, English 8, and history 8.

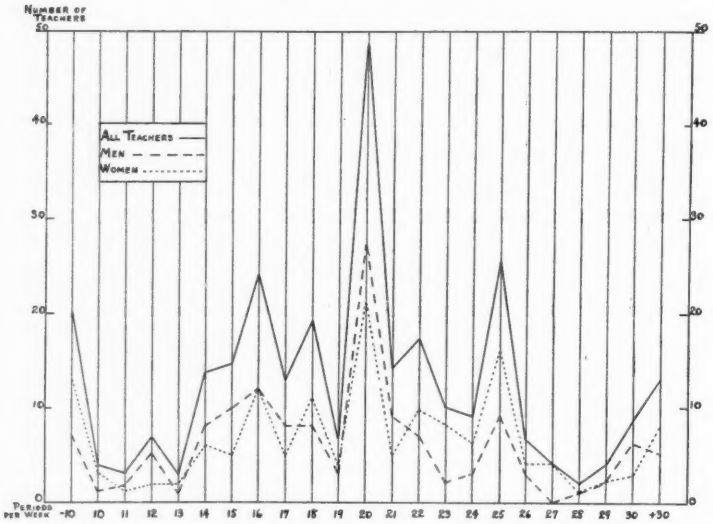


CHART A.—Teaching periods per week for instructors in southern normal schools

It would certainly seem that the subject of education should, in our normal schools, serve as a model of all that is best in academic standards. Correcting of the tendency to unduly large classes might be accomplished by raising the median number of classes per instructor. But since it appears from Table III that education is the least effectively staffed of the more important required subjects of normal schools, additions to the ranks of instructors would be a more effective way to secure a smaller number of students for each class. As the median number of hours per week for education teachers is not low (19.5), this suggestion is all the more reasonable.

6. *The teaching load.*—Irrespective of subjects and of period lengths it may be seen from Chart A that instructors may be divided into three groups, those having light, medium, or heavy work. Of these three modes the medium load of 20 hours per week is decidedly the prevailing one. No discrimination is shown either in favor of or against women. Calculation shows that the typical woman teaches only 25 minutes more per week than the typical man. One school is responsible for the major portion of the heavy work shown on this chart, 23 members of its faculty having 25 or more hours per week and only two having 17 or less. On the other hand, the light work is evenly distributed among the other schools.

Thus a decided majority of instructors in southern normals carry a greater teaching load than the recommended maximum of 16 hours of the Carnegie Foundations[1] and the established custom of less than 18 hours in colleges and universities.[2] The writer cannot but agree that "this table explains why the faculties of normal schools do not carry on as much productive work" [Judd] as the more favored college faculty member finds himself able to do.

III. SALARIES

1. *Salaries of men and women.*—Table V reveals a fundamental difference in the salaries of men and of women instructors in southern normal schools. Subject by subject the median salary paid to women remains at a remarkably uniform level—it seems that a certain amount is distinctly a "woman's salary." The median for men's salaries rarely falls below a point $500 above that of the women.

2. *Salaries in different subjects.*—The laboratory subjects and education head the list with their medians above those of the typical "liberal-arts" subjects, but this rank is decidedly deceptive although statistically true. In these sciences there is a predominance of men, and their median salary is almost identical with the median for all teachers. But in the arts subjects the median salary

[1] *Curricula Designed for the Professional Preparation of Teachers for American Public Schools*, Carnegie Foundation, February, 1917.

[2] "Problems Involved in Standardizing State Normal Schools," Judd and Parker, *U.S. Bureau of Education, Bulletin 12* (1916), p. 18.

for men has risen—the median salary for women has also risen slightly, but the increase in the percentage of women at the lower salaries has brought down the median for all teachers to a marked degree. For either sex alone instructors in the liberal-arts subjects receive higher pay than their colleagues of the same sex in the sciences or education.

TABLE V

SALARIES IN 15 SOUTHERN NORMAL SCHOOLS, FALL OF 1916

SUBJECT*	MEDIAN SALARIES FOR INSTRUCTORS			UPPER RANGE FOR		MEDIAN SALARIES IN CERTAIN STATE-AIDED COLLEGES AND UNIVERSITIES†
	All	Men	Women	Men	Women	
Education	$1,500	$1,535	$1,150	$2,000	$1,350	$2,100
Physics and chemistry	1,500	1,500	1,000	2,280	1,200	1,700
Agriculture	1,475	1,500	855	2,000	855	2,000
Manual training	1,450	1,500	975	1,800	1,200	1,500
Biology	1,400	1,600	1,150	1,800	1,200	1,500
History	1,400	1,725	1,000	2,250	1,500	2,000
Modern language	1,300	1,650	1,193	1,800	1,500	2,000
English	1,265	1,800	1,000	2,000	1,800	1,200
Latin	1,262	1,450	900	1,900	1,200	2,100
Geography	1,200	1,800	950	1,800	1,350	2,100
Mathematics	1,200	1,680	930	2,000	1,500	1,400
Reading	1,156	.....	1,156	.....	1,500	.....
Physical training	1,100	1,130	1,000	1,200	1,200	1,400
Music	1,000	1,250	1,000	1,500	1,350	1,200
Home economics	900	.....	900	.....	1,500	1,500
Drawing and penmanship	900	1,800	900	1,800	1,500	1,400

* Subjects ranked according to the median salaries of all instructors.

† The median salaries in certain state-aided colleges and universities are calculated from data in "The Tangible Rewards of Teaching," Boykin and King, *U.S. Bureau of Education, Bulletin No. 16* (1914), pp. 372–92. These colleges are not southern colleges, but are distributed over the country at large. The figures are the median salaries of professors, assistant professors, and instructors, but not assistants, in the various subjects.

3. *Distribution of salaries.*—When the number of instructors receiving each particular salary is counted it is noticed that for each sex there are three distinct crests at a distance of $300 apart, as shown in Chart B. The mode for women's salaries is the lowest of waves, and the mode for men's salaries is the highest. The median salaries for men and women are $500 apart, thus again demonstrating the fact that femininity is essentially at a $500 discount.

IV. CONCLUSION

Whether the median conditions presented in this study are reasonable standards is a matter for individual judgment. In any particular school an extreme variation from these numerical values would, in most instances, require some valid explanation.

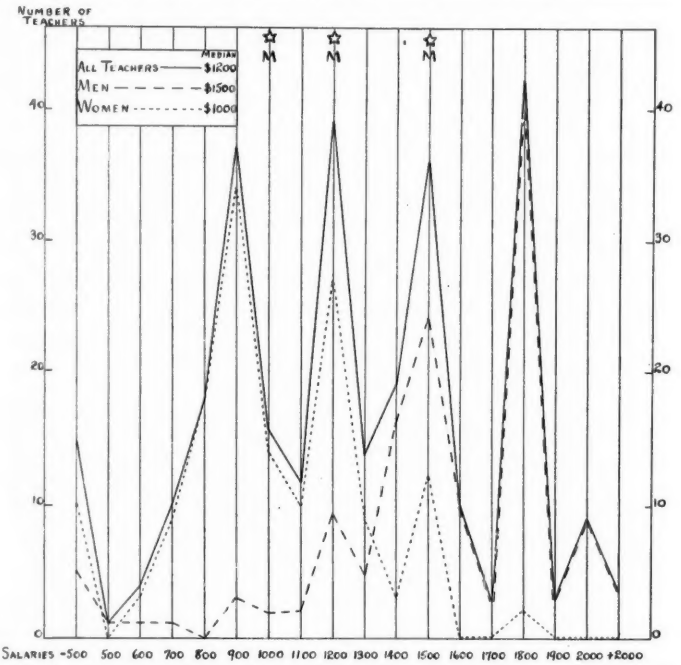


CHART B.—Salaries of instructors in southern normal schools—1916, for regular term only.

These values are the suggestions neither of the writer, nor of his associates, nor of any alleged authority, but accurately represent typical conditions in these normal schools in 1916. Hence it is assumed that they represent the standards of sex percentage, classes, hours, salaries, etc., which administrators in southern normal schools have set for their faculties, and upon which they presumably are willing to be judged.

PRACTICAL APPLICATION OF STANDARD TESTS IN SPELLING, LANGUAGE, AND ARITHMETIC

JOSEPH P. O'HERN
Assistant Superintendent of Schools, Rochester, New York

Rochester has done so much for its school children along the lines of manual training, domestic science, domestic art, music, drawing, physical education, etc., that the question has often been raised as to whether or not the subjects of reading, spelling, arithmetic, language, etc., were receiving the necessary time and attention. Monthly tests and city-wide term examinations indicated a satisfactory condition. These tests, however, were made up within the system and were therefore local. The use of standard tests was started in order to find out how Rochester would compare with other cities in the so-called formal subjects. The more we use standard tests the more we are convinced that these tests are useful, not only for the purposes of diagnosis and comparison, but also for the purpose of locating new pupils in the right grade. This is especially true of the Judd Arithmetic Test, which may be used in grading new pupils who come from other school systems at all times of the year.

SPELLING TESTS

In spelling three tests were given: the Buckingham ten-point spelling scale and two Ayres spelling tests. In the Buckingham test the scores were high in all grades from the third to the eighth inclusive.

For the first Ayres spelling test the same words were chosen that were given in Springfield, Butte, Oakland, and Salt Lake City.

The second Ayres spelling test was the same as that chosen by the Cleveland Survey Committee. The low score in the fourth grade was due to the fact that a number of words in the examination were not taught in this grade. In general, however, most of the words were found in our course of study for the grade concerned.

The results of these standard spelling tests justified the time limit we had set for spelling, which is about 2 per cent less than the time given to spelling in most city school systems.

TABLE I

COMPARISON OF THE RESULTS FROM THE BUCKINGHAM SPELLING SCALE IN ROCHESTER AND NEW YORK

	Grade						Average
	III	IV	V	VI	VII	VIII	
New York.....	30	47	60	70	78	85	62
Rochester.....	55	70	80	85	91	95	77
Difference...	+25	+23	+20	+15	+13	+10	+15

TABLE II

COMPARISON OF THE RESULTS FROM THE FIRST AYRES SPELLING TEST WITH OTHER CITIES

	Grade						Average
	III	IV	V	VI	VII	VIII	
Springfield, Ill.....	65.0	70.0	72.0	68.0	73.0	75.0	70.0
Butte, Mont.....	81.8	78.7	84.5	75.0	76.2	89.4	80.3
Oakland, Cal.....	66.7	75.9	84.7	80.2	79.9	76.3	76.5
Salt Lake City, Utah....	89.9	78.8	87.6	86.8	87.1	82.2	86.0
Rochester, N.Y.....	77.8	77.4	85.5	82.9	83.1	84.9	81.9

NOTE.—In Butte and Salt Lake City this test included only the B sections of the grade while in Oakland and Rochester it included both A and B sections.

TABLE III

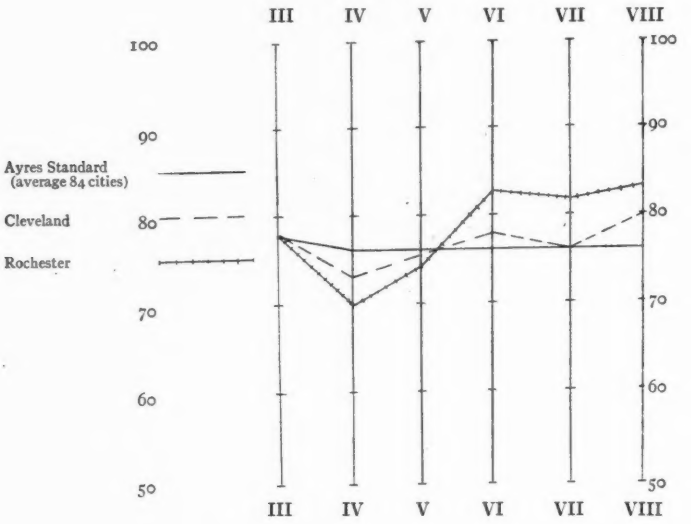
COMPARISON OF THE RESULTS FROM THE CLEVELAND SURVEY AYRES SPELLING TEST WITH THE AYRES STANDARD

	Grade												Average
	III		IV		V		VI		VII		VIII		
	B	A	B	A	B	A	B	A	B	A	B	A	
Standard.....	73.0	81.4	73.0	78.9	73.0	78.9	73.0	78.9	73.0	78.9	73.0	78.9	76.0
Rochester.....	73.2	81.9	68.6	71.4	71.5	76.8	80.9	84.6	79.5	85.2	81.6	84.9	77.5
Difference.....	+0.2	+0.5	−4.4	−7.5	−1.5	−2.1	+7.9	+5.7	+6.5	+6.3	+8.6	+6.0	+1.5

TABLE IV

COMPARISON OF THE RESULTS FROM THE CLEVELAND SURVEY AYRES SPELLING TEST WITH THE ROCHESTER SCORES

	GRADE						AVERAGE
	III	IV	V	VI	VII	VIII	
Cleveland.....	78.0	73.0	75.0	78.0	76.0	80.0	76.0
Rochester.....	77.5	69.9	74.0	82.5	81.9	83.3	77.5
Difference ..	−0.5	−3.1	−1.0	+4.5	+5.9	+3.3	+1.5



LANGUAGE TESTS

The Kansas Silent-Reading Test was given in all grades of the city, from the third to the eighth. The scores were slightly above the standard in the third, fourth, and fifth, slightly below in the sixth, equal in the seventh, and somewhat below in the eighth grade. The silent-reading test showed that the schools having a large foreign population fell below the standard median,

while schools in the English-speaking sections ran well above the standard.

TABLE V

COMPARISON OF THE RESULTS FROM THE KANSAS SILENT-READING TEST WITH THE STANDARD

	Grade					
	III	IV	V	VI	VII	VIII
Standard	5.0	9.4	13.4	13.8	16.5	19.2
Rochester	5.9	9.9	13.7	13.6	16.5	17.4
Difference	+0.9	+0.5	+0.3	−0.2	0	−1.8

THORNDIKE'S VISUAL-VOCABULARY TEST

In order to test the power of word-recognition and word-meaning the Thorndike Visual-Vocabulary Test was given in eleven schools in Grades III B to VIII A inclusive, and in the B and A divisions of the third grade in eight additional schools, all largely foreign except one.

TABLE VI

COMPARISON OF THE RESULTS FROM THE THORNDIKE VISUAL-VOCABULARY TEST WITH EIGHTEEN CITIES OF INDIANA

	Grade											
	III		IV		V		VI		VII		VIII	
	B	A	B	A	B	A	B	A	B	A	B	A
Rochester	4	4	4½	5½	5½	6	6½	7	7½	8½	8½	8
Indiana	4		5.26		6		6.66		7.29		7.91	

In the visual-vocabulary test Thorndike attempts to test the understanding of the meaning of words. There are nine steps in this scale, five words each, the steps being equal in difficulty. There is increasing difficulty from line to line. The words were selected from a long list and tested at first by the examination of about fifteen hundred children. The pupils use a letter to show what the word represents, *A* for animal, *F* for flower, etc. This test is

valuable because it determines whether the child grasps the meaning of the printed word. It gives undue prominence to names of animals and flowers. No standard grade scores have been determined. It is impossible, therefore, to compare the record of the Rochester schools with a standard score. A record, however, was made in eighteen cities in Indiana that may serve for the time being for such a comparison. On that basis the record in Rochester is strikingly similar to that of the cities of Indiana.

The record in the various schools is very even and consistent from grade to grade, except in the foreign schools, where thirteen groups failed to score at all in the III B and six groups failed to score in III A.

The principal in a local school, which is 90 per cent Italian, made a very complete report of the results attained in his school. The final statement in this report might be quoted as an explanation of the failure of so many groups to score in III B and III A.

> This scale was uninspiring from the standpoint of results. The element of nationality enters even to a greater extent than in the Trabue scale. Children who hear little or no English spoken at home and whose opportunities for reading outside of school are very limited had a hard time with it. Such children's vocabulary of words taken apart from the context of a paragraph is very limited.
>
> Some erratic tendencies are noticed in these results. A great many individual children succeeded in passing certain steps after having failed in one, two, or three of the preceding steps. To some extent this may have been due to the type of words occurring in the steps. It was very evident from the results that words belonging to the general classes of animals or flowers were much more familiar than the words expressing time or the moral qualities classified under "Good" or "Bad."
>
> The fact that the IV A results were better uniformly than those from the V B, and the V A results better than all others, reveals a condition requiring further study. These results are in accord, however, with those attained by the corresponding grades in the Trabue test. In general the over-age children did poorly in this test. This was to be expected, however, since in a majority of cases it is inability to use English that has caused their retardation.
>
> At least two lines of remedial effort are suggested by these results, viz., (1) more emphasis on the meaning of words occurring in reading and spelling lessons with practice in using the same in sentences; (2) more dictionary work in intermediate and upper grades.

THORNDIKE'S SCALE ALPHA

The Thorndike Scale Alpha consists of a series of paragraphs. The child's understanding is tested by requiring him to answer questions and to follow directions concerning the paragraph. The scale is designed for pupils from the third grade to the high school. It lacks the advantage of a connected story, and the suitability of subject-matter might possibly be questioned as being devoid of interest to many pupils.

As there was some question as to the method of scoring the results in this test, it was decided for the sake of uniformity that the total class average of correct answers to questions would be used as the score.

Since no standard scores are available the results are chiefly valuable for purposes of internal comparison. In the schools where the test was given in all grades the record for the number of divisions of a grade which were above or below the median is shown in Table VII. Schools C, D, G, and K in this table are predominantly foreign in nationality, Schools E, H, and I are mixed in nationality, Schools A, B, and F are American, and School J is a village school recently annexed to the city. This comparison would seem to prove the point quoted above, that the element of nationality is a very strong factor. The schools having the larger number of divisions above the median might be considered as favored communities in point of environment, home influences, and opportunities.

TABLE VII

School	Above Median	Below Median	School	Above Median	Below Median
A	11	1	G	1	7
B	11	1	H	8	4
C	4	8	I	6	2
D	1	7	J	0	12
E	6	6	K	0	4
F	10	2			

In comparing the results of the visual-vocabulary test with the results of the scale-alpha test it is evident that word-recognition is easier than content-reproduction. It may be that too many of our school children learn to pronounce words without being made fully

conscious of their meaning, but in the absence of standards it is a problem for further investigation.

The results obtained from the use of scale alpha would seem to emphasize the fact that silent reading with understanding is more important and should receive more attention than oral reading.

TABLE VIII

THORNDIKE SCALE ALPHA

	GRADE											
	III		IV		V		VI		VII		VIII	
	B	A	B	A	B	A	B	A	B	A	B	A
Rochester median..	8.3	12.1	13.9	15.8	17.4	17.95	18.7	18.9	13.9	15.4	16.4	17.6

TRABUE COMPLETION LANGUAGE SCALE B

The Trabue Completion Language Scale B was given in eleven schools from Grades III B to VIII A inclusive and in the B and A divisions of the third grade in the seven schools that comprise the Washington Junior High School District. The eleven schools represent all the types of schools to be found in a city the size of Rochester, the foreign in nationality, the mixed in nationality, and the well-to-do sections.

The Trabue test is merely a list of incomplete sentences arranged in such a way that pupils may be expected to complete them, hence the name. There are ten sentences in each test. Seven minutes are allowed for each test. Two credits are allowed for each sentence. These tests are considered of value in judging general intelligence.

Dr. Trabue found that the results of his tests agreed with the opinion of the teacher as to the pupils' general ability.

Of these completion-test language scales Dr. Trabue says:

> No attempt has been made to define language in any strict sense, and it is entirely possible that some persons may be able to speak the English language and perhaps to write it fairly well without being able to make a very high score on these scales. It may also happen that some individuals will be found who score well on these language scales and are yet unable to quote a

single rule of English grammar. On the whole, however, it will be found that ability to complete these sentences successfully is very closely related to what is usually called language ability.

The results of the test in the eleven schools were eminently satisfactory from the point of view of achievement (see Table IX). Only four groups out of the one hundred and forty groups examined were below the standard median. The gain in score from lower to higher grades was uniformly consistent. This would tend to confirm the assumption of the author, in arranging the language scales, "that older children will not only be able to do the same tasks more rapidly and more perfectly than younger children, but that the older children will also be able to accomplish perfectly tasks which the younger children could not begin to do."

In only seven cases did a B group of a grade within a school score a higher standing than the A group of the same grade. While there is variation in the scores within a grade, school by school, still the variation is not so marked as to point to lack of uniformity.

In this test the foreign schools in the upper grades vary little from other schools, and in some groups attain a higher median.

TABLE IX

COMPARISON OF THE RESULTS FROM THE TRABUE COMPLETION TEST WITH THE STANDARD

	Grade					
	III	IV	V	VI	VII	VIII
Rochester	7.77	10.17	11.55	12.57	14.37	14.75
Standard	6.00	8.00	9.80	11.00	12.30	13.30
Difference	+1.77	+2.17	+1.75	+1.57	+2.07	+1.45

STARCH GRAMMATICAL SCALE A

The Starch Grammatical Scale A was given in the seventh and eighth grades in eight schools. The scale includes different items of grammatical forms and is therefore only a general measure of ability to use correct language forms. Each pupil is given a printed copy of the scale and is allowed as much time as he needs. The scale directions are as follows: "Each of the following sentences

gives in parenthesis two ways in which it may be stated. Cross out the one you think is incorrect or bad. If you think both are incorrect, cross both out. If you think both are correct, underline both."

The results point to a condition that is unusual, especially in the seventh grade, where the score was equal to the score of the eighth grade. In fact, the VII A score was higher than the score of VIII B and VIII A.

The difference between VII A and VIII A scores would seem to indicate too little emphasis in VIII A and perhaps a corresponding overemphasis in VII A. The question of nationality or neighborhood does not seem to enter. It is a question of balance and right emphasis.

TABLE X

COMPARISON OF THE RESULTS IN THE STARCH GRAMMATICAL SCALE WITH THE STANDARD

	GRADE			
	VII		VIII	
	B	A	B	A
Rochester.....	8.4	8.9	8.45	8.8
Standard.....	8.0		8.3	
Difference....	+.6		+.3	

JUDD-COURTIS ARITHMETIC TEST

The course of study affirms "on the one hand that the study of arithmetic should develop mental power along the lines of attention, concentration, judgment, and reasoning; on the other that it should give the child such skill in the use of numbers as will enable him to perform the fundamental operations with facility and accuracy and in such a manner that the mere mechanics of these processes shall not retard his thinking." The need of adequate ways and means of testing instruction in arithmetic has been felt for many years. The pioneers in the field of testing in the fundamental operations were Rice and Stone. Courtis came next with his Series A, which, however, proved unsatisfactory and was replaced

by Series B, which represented a distinct improvement over the earlier form. Series B has been used extensively throughout the country, and as a result reliable standards have been established in the attainments of children in the fundamental operations of arithmetic. It was felt by the Cleveland Survey Committee that "it was necessary to introduce, between the very simple type of example in the first series (Courtis Series A) and the highly complex type in the second series (Courtis Series B), tests representing types of intermediate complexity." As a result, and with the co-operation of Mr. Courtis, the Judd arithmetic tests were devised and given to the B grades in Cleveland and later to the B and A grades in Grand Rapids. The Judd test is composed of four sets in addition (A, E, J, M), two in subtraction (B, F), three in multiplication (C, G, L), four in division (D, I, K, N), and two in fractions (H, O). The pupil begins with Set A and takes each set in order. The test is spiral in character, and in this respect it differs from the Courtis tests.

> The several sets in each operation are arranged in the test in the order of their complexity, but with them are interwoven the sets of the other operations. Thus a pupil first works on a set of examples in addition, then passes successively to sets in subtraction, multiplication, and division before encountering addition again. This changing from one type of operation to another lessens the strain on the pupil which is involved in a prolonged test of this sort.[1]

The Judd test was chosen by the Cleveland Survey Committee because it was thought that "it would, on the one hand, show the general standing of the city as a whole in the fundamentals of arithmetic and would, on the other hand, be diagnostic in its character, indicating school, class, and individual weakness in each of the different types of operations which enter into the solving of the more complex examples in each of the four fundamental operations."

The Judd test was given in the same schools as the other standard tests. In Cleveland the test was given to the B grades only and in Grand Rapids to the B and A grades. Rochester medians are

[1] George S. Counts, *Arithmetic Tests and Studies in the Psychology of Arithmetic* (Supplementary Educational Monographs, Vol. 1, No. 4, whole No. 4), p. 6.

below the Cleveland medians in every B grade in Sets B, H, and K, but above in every grade in Sets L and M.

In	B	grades	27	medians	were	above	Cleveland	medians
"	B	"	50	"	"	below	"	"
"	A	"	49	"	"	above	"	"
"	A	"	35	"	"	below	"	"

Medians improve from grade to grade in every division of the test. Occasionally the record of the A grade is less than the corresponding B grade, but only slightly less in any case.

Compared with Grand Rapids—

In	B	grades	36	medians	were	above	Grand	Rapids	medians
"	B	"	29	"	"	below	"	"	"
"	B	"	3	"	"	equal to	"	"	"
"	A	"	44	"	"	above	"	"	"
"	A	"	26	"	"	below	"	"	"
"	A	"	1	median	was	equal to	"	"	"

The comparison with Grand Rapids is more favorable to Rochester than the comparison with Cleveland. This may be due to the fact that there is more certainty as to the reliability of the Grand Rapids scores. Professor Counts says: "A great deal more care was taken here than in Cleveland to insure the results against error. In Cleveland the teachers were inexperienced in giving tests, while in Grand Rapids they were all more or less familiar with the Courtis tests." In Rochester the tests were given and timed by principals who had taken the courses in tests and measurements under Professor L. A. Pechstein, at the University of Rochester. Testing conditions were standardized and carefully supervised.

A more important way of looking at the scores is from the point of view of difficulty. In point of difficulty from simple to complex Professor Counts groups the sets as follows:

1. A, B, C, D
2. E, F, G
3. H
4. I, J, K
5. L, M, N, O

Compared with Cleveland in—

1. A, B, C, D	4	medians	above	Cleveland	medians
	20	"	below	"	"
2. E, F, G	4	"	above	"	"
	10	"	below	"	"
3. H	0	"	above	"	"
	4	"	below	"	"
4. I, J, K	7	"	above	"	"
	8	"	below	"	:
5. L, M, N, O	12	"	above	"	"
	7	"	below	"	"

Compared with Grand Rapids in—

1. A, B, C, D	25	medians	above	Grand	Rapids	medians
	17	"	below	"	"	"
	2	"	equal	"	"	"
2. E, F, G	19	"	above	"	"	"
	11	"	below	"	"	"
3. H	0	"	above	"	"	"
	7	"	below	"	"	"
4. I, J, K	18	"	above	"	"	"
	9	"	below	"	"	"
5. L, M, N, O	18	"	above	"	"	"
	11	"	below	"	"	"
	2	"	equal	"	"	"

The foregoing comparisons would seem to indicate that in the more difficult sets of the test Rochester pupils have a slight advantage. Whether a larger expenditure of time on the fundamental operations in the lower grades would seem necessary from the results of this one test is a question. The deciding factor should be how well the work is done rather than how much time is taken. In all probability too much time is taken in some cases and too little in other cases. Some pupils and some groups need more time and other pupils and other groups less time. Of this the teacher must be the judge, save where a test clearly proves the direct necessity of a definite course of action.

A comparison by grades and tests is given in Table XI (see p. 677). From this table the following details may be selected for comment:

SETS A, E, J, M—ADDITION

Set A.—The medians are below Cleveland in all but IV B and V B. The medians are above Grand Rapids in III B and A, IV B and A, V B and A, VI B, equal in VI A, and below in VII B and A and VIII B and A, indicating a need of daily rapid drill in the upper grades in order to maintain the skill developed in the lower grades.

Set E.—This is short, single-column addition. It is evident that insufficient attention is given to this type of written work.

Set J.—This is long, single-column addition. The Rochester medians are above Cleveland in all grades except IV B and V B, and above Grand Rapids in five and below in four divisions. If the same attention had been given to short-column written addition as to long single-column addition the test would have shown the same satisfactory results.

Set M.—Above Cleveland in every group and below Grand Rapids in three divisions, V A, VII B, and VIII B. This shows ample practice in written work.

SETS B, F—SUBTRACTION

Set B.—Many pupils added Set B instead of subtracting, which may explain the poor record in this set.

Set F.—This does not mean that children cannot have examples under the Cleveland form. (See *Course of Study*, p. 14, sec. 3D.)

SETS C, G, L—MULTIPLICATION

Set C.—Below Cleveland in B grades and above in A grades, above Grand Rapids in five and below in five. Pupils misunderstood this form of multiplication, as it is not used in the schools. This suggests that it might be well in grades above III B to express the work in both horizontal and vertical forms.

Set G.—Above Cleveland in IV B. Other grades practically same as Cleveland. Above Grand Rapids in all but three divisions.

Set L.—This is the most difficult set and our medians are above Cleveland in all grades B and A and above Grand Rapids in five and below in three, VII B, VIII B, and VIII A.

SETS D, I, K, N—DIVISION

Set D.—Below Cleveland in IV B, VII B, and VIII B and above in V B and VI B, and above Grand Rapids in all but one. This may indicate that upper grades have not been using this form of division.

Set I.—Above Cleveland in IV B and V B and the same in VI B and VII B. Above in Grand Rapids in all but one. The slight falling off in VIII B might indicate a need of drill in this type.

Set K.—Below Cleveland in all grades, and below Grand Rapids in four and above in four. This indicates a distinct need of continuous drill on simple long division.

Set N.—Below Cleveland in all B grades except VI B and above in all A grades. Above Grand Rapids in all but one case, where grades are equal. This may mean the necessity of more drill on simple forms of long division.

SETS H, O—FRACTIONS

Set H.—Below Cleveland and Grand Rapids in all grades B and A. It is evident that too much was taken for granted in the work in fractions. The results indicate the need of more stress on the simple forms.

Set O.—Below Cleveland and below Grand Rapids. Here again the need of more daily drill on simple fractions is apparent.

Principals and teachers should make a careful study of the scores, not only the scores in Rochester, but also the scores in Cleveland and Grand Rapids. How do we compare with Cleveland and Grand Rapids as a system, grade by grade and set by set? How do our own schools compare with one another? How do grades compare in the various operations, set by set? Is the progress of a grade in any school normal, or does it show variation —above the median in one operation and below in another, showing lack of balance, lack of stress, and lack of supervision? Does the record of an individual pupil show variation to such an extent that remedial measures should be sought to eradicate the weakness or to remove wrong associations in certain phases of number work? We have traced the record grade by grade and set by set and noted the cases where a grade is above in all sets, below in all sets, or

above in some and below in others. In general there is a consistent and stable balance, but exceptions occur here and there. The most noticeable variation is in Set H, fractions. In V B, where Set H is first given, the variation is from 0.5 lowest to 10.1 highest; in V A from 0 to 7; in VI B from 0 to 9; in VI A from 1 to 6.8; in VII B from 0 to 6.5; in VII A from 2 to 8; in VIII B from 0 to 6.1, and in VIII A from 2.3 to 7.5. In no other set is there such pronounced variation in scores. Variations are bound to appear, owing to individual differences, teaching conditions, environment, etc., but given average intelligence and normal conditions there should not be such pronounced variation as in the case of Set H, where Rochester is below Cleveland and Grand Rapids in every grade. In Set O we are also below Cleveland and Grand Rapids in all but VIII A; still there is not the same pronounced variation grade by grade as in the case of Set H.

Attention is called to chapters v and vi in Counts's *Arithmetic Tests and Studies in the Psychology of Arithmetic*. Chapter v contains a "comparison of the arithmetical abilities of certain age and promotion groups" and chapter vi contains a "comparison of the arithmetical abilities of certain race groups." A division of a number of groups into under-age, normal, and over-age groups proved to our satisfaction that the conclusions reached by Professor Counts in chapter v are applicable to Rochester, namely, that "'fast' corresponds to the young and the 'slow' to the old." Furthermore, a glance at the arithmetic scores of the various schools will show that his conclusions as to the abilities of certain race groups would be found true in Rochester. The scores attained by the various grades in one school, 90 per cent Italian, are invariably above the median and in several grades the very highest scores of all. In V A this school attained the highest score in all but two sets. Other schools, mostly foreign, might also be mentioned in this connection. There is apparently no handicap from language or race in the study of arithmetic. This is quite natural, as number is a universal concept apart from any medium of expression save the symbol itself. As Professor Counts suggests, there may be social factors at work tending to bring about these differences. Whatever may be the explanation, the fact remains that in

TABLE XI

COMPARISON OF THE RESULTS OF THE JUDD ARITHMETIC TEST WITH THE CLEVELAND AND GRAND RAPIDS SCORES

GRADE	CITY	SET														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
IIIB	Cleveland	13.4	9.3	6.5	6.3	4.3	2.0	2.0	.....	0.6	1.9	.....	.....	1.4	.....	.....
	Grand Rapids	11.8	6.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Rochester	12.3	4.5	5.0	.....	4.1	1.9	.....	.....	.....	1.9	.....	.....	1.8	.....	.....
IIIA	Grand Rapids	13.4	8.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Rochester	13.95	3.95	8.2	6.25	3.65	2.35	2.9	.....	0.2	2.6	.....	1.6	2.05	.....	.....
IVB	Cleveland	17.8	13.4	12.0	12.4	5.3	4.9	3.9	.....	1.1	3.2	4.0	1.7	2.5	0.8	.....
	Grand Rapids	13.6	9.1	7.1	6.9	4.1	2.8	2.2	.....	0.7	.....	.....	.....	.....	.....	.....
	Rochester	18.3	7.5	11.0	10.8	4.6	4.0	4.0	.....	1.3	2.9	.....	2.0	2.9	.....	.....
IVA	Grand Rapids	16.4	12.1	11.3	10.4	4.6	4.1	3.3	.....	0.9	2.8	.....	.....	2.3	.....	.....
	Rochester	17.5	13.0	13.2	11.7	5.6	6.3	5.0	.....	1.7	3.6	2.7	3.0	3.6	1.0	.....
VB	Cleveland	22.2	17.2	15.5	15.7	6.3	6.7	5.2	5.0	2.0	4.0	6.8	2.5	3.2	1.3	.....
	Grand Rapids	20.3	14.7	13.7	12.5	5.2	6.0	4.0	.....	1.3	3.4	3.0	2.3	3.0	0.7	.....
	Rochester	23.0	16.5	14.7	17.0	6.0	7.1	5.1	2.7	2.8	4.3	3.7	3.1	3.6	1.0	.....
VA	Grand Rapids	21.5	15.9	14.0	14.3	5.4	6.5	4.9	6.3	1.4	3.7	4.3	2.9	3.6	0.8	.....
	Rochester	23.0	17.15	14.25	15.85	6.1	6.75	5.15	2.15	2.7	4.2	4.95	2.95	3.25	1.5	3.0
VIB	Cleveland	24.8	19.8	16.6	18.5	6.8	7.5	5.5	5.5	3.1	4.4	8.5	2.8	3.8	1.7	3.1
	Grand Rapids	22.8	16.8	15.5	15.5	6.0	7.1	5.3	6.2	2.3	4.1	5.4	3.3	4.3	1.1	3.5
	Rochester	23.5	19.3	15.0	18.8	6.5	7.6	5.4	1.8	3.0	4.7	5.8	3.8	4.3	1.8	3.0
VIA	Grand Rapids	25.0	19.1	17.0	16.9	6.6	8.0	5.6	6.5	3.0	4.5	6.5	3.6	4.5	1.4	3.6
	Rochester	25.0	19.55	16.0	18.75	6.55	8.5	5.75	2.55	3.5	4.9	7.0	3.8	4.25	1.85	3.35
VIIB	Cleveland	26.7	21.5	17.7	20.8	7.5	8.6	5.9	7.7	4.0	4.9	10.1	3.2	4.4	2.0	4.1
	Grand Rapids	26.5	21.3	17.7	18.4	7.2	9.3	6.1	9.0	3.8	5.4	7.5	4.3	4.9	1.7	3.9
	Rochester	25.6	20.0	15.9	18.4	6.8	7.8	5.8	3.7	4.0	4.9	6.8	4.0	4.8	1.7	3.5
VIIA	Grand Rapids	27.3	20.7	18.8	19.7	7.2	9.6	6.1	7.8	4.1	5.3	8.8	4.5	5.0	1.8	4.6
	Rochester	26.0	19.75	17.25	19.45	6.95	8.55	6.25	4.1	4.15	4.95	8.0	4.65	5.1	2.45	3.95
VIIIB	Cleveland	27.5	26.0	19.0	22.5	7.8	10.1	6.6	8.5	4.7	5.7	12.5	3.9	5.1	2.6	5.5
	Grand Rapids	29.5	22.8	49.3	20.5	7.8	10.3	6.7	8.6	4.0	5.7	9.7	4.9	5.7	2.0	5.5
	Rochester	24.3	21.15	17.15	21.4	8.35	8.55	6.45	4.8	4.25	5.65	8.65	4.7	5.55	2.5	4.4
VIIIA	Grand Rapids	30.3	25.5	20.7	23.0	8.1	11.0	6.8	8.8	4.7	6.5	10.3	4.9	5.7	2.3	4.8
	Rochester	29.25	24.8	17.8	23.15	7.75	9.7	7.0	4.9	5.1	5.8	9.9	4.8	6.2	2.9	5.0

arithmetic the pupils of foreign parentage are in the lead. Finally, it is significant to note that the types of errors found by Counts in his analysis of Cleveland and Grand Rapids scores are likewise revealed in the Rochester results.

SUMMARY AND CONCLUSION

From this attempt to measure scientifically the educational attainment of school children in the language and arithmetical abilities eight points of major significance may be drawn in summary:

Language abilities.—

1. The development of language ability is being adequately secured, so far as the entire city system is concerned. This is shown consistently by all the tests used.

2. The ability to recognize words seems to develop faster than that of ascribing meanings and relations. The groups largely foreign in make-up reveal marked weakness in the latter.

3. The general intelligence of school children seems adequately measured by the Trabue Completion Test. The regularity of increase throughout the grades argues that the schools are successfully counteracting the handicap of nationality so marked in the lower grades.

4. The correct use of spoken idioms needs continued attention through the eight grades. These speech habits cannot be taken for granted.

Arithmetical abilities.—

1. The entire range of these special-ability tests shows that consistent improvement is being obtained from grade to grade.

2. The city-wide scores argue, after comparison with comparable conditions in other cities, that the local work is markedly satisfactory.

3. The harder arithmetical operations are executed relatively better than the easier ones, and certain of the easier operations bear comparison unfavorably.

4. The schools appear to take too much for granted in the teaching of fractions. Comparison shows that an expectation of better scores is warranted.

The statistical findings of the tests and their interpretation suggest that considerable attention may profitably be given to the actual teaching situation. The principal and teacher may profitably concern themselves with the following questions:

How does the school compare with the national and the local standards?

Which of the grades is below the standard?

Is this inferiority due to poor preparation, insufficient attention to the subject, racial handicap, poor teaching, or poor supervision?

What grades are above the standard?

Is this superiority due to superior school and home conditions, superior native ability, superior teaching, or an unwarranted overexpenditure of time upon this particular subject?

Are the several duplicate grades producing comparable returns?

Are any of the grades showing wide group variability and thereby revealing a need of partial reclassification?

Do certain grades need to spend more time upon certain specific lines of work, and does the course of study need to emphasize these more fully?

The teacher may profitably be concerned with the following:

How does my grade compare with the national and local standards?

How shall I interpret a possible superiority—superior native ability of the pupils, better environmental conditions, better teaching, excessive amount of time spent herein, or as chance?

How shall I interpret a possible inferiority—inferior native abilities or environmental handicap, too little attention to the subject factors of chance, or poor teaching?

If the last named, how can I improve the condition—give more time to the item of demonstrated weakness, present material in a different manner, work more with lower fourth of group and give individual attention herein, and be attentive to errors of demonstrated frequency of occurrence and persistency?

DEVELOPMENTAL ALEXIA: CONGENITAL WORD-BLINDNESS, OR INABILITY TO LEARN TO READ

CLARA SCHMITT
Department of Child-Study, Chicago

Congenital word-blindness, inability to learn to read, or dyslexia has been defined as an extreme difficulty to learn to recognize printed or written language on the part of persons otherwise normally endowed mentally and without defect of vision or other physical defect of such gravity as to constitute an interference of the process of learning to read. "Congenital word-blindness" is the term used by nearly all writers on this condition and for that reason will be used throughout this report.

This condition was first recognized in 1896. It was first referred to by Kerr[1] in the Howard Prize Essay of the Royal Statistical Society. Kerr discussed the needs of school children and mentioned that there were children in the schools who had no physical defects and were well endowed as to general mental ability who could not learn to read and were not understood by their instructors. He recommended that they be taught in separate classes.

Morgan,[2] an ophthalmologist, in 1896 reported the case of a boy of fourteen who was brought to him for examination of vision. The boy's parents thought that his inability to learn to read might be due to defect of vision. The vision was found to be perfect, the mentality of the boy to be good, but he confessed that "printed words had no meaning to him." Morgan applied the term "congenital word-blindness" to such cases.

Nearly every year since then one or more persons, mainly ophthalmologists, school physicians, and other medical men, have

[1] Kerr, Howard Prize Essay, Brit. Royal Statistical Society, 1896.

[2] Morgan, "Congenital Wordblindness," *British Med. Jour.*, 1896.

reported such cases coming to their notice. Several writers have each appeared from time to time with such reports. With but a few exceptions the data advanced in proof of the good general mental ability of the subjects have been convincing. In such cases the subjects were found to be capable of learning the arithmetic and other school subjects not depending upon reading ability, capable of conducting themselves satisfactorily in social ways, and with good memory for poems, songs, etc. One writer tells of a brilliant surgeon who could read almost nothing but acquired all knowledge by ear. Another tells of a congenitally word-blind person who became a successful lawyer, though able to read very little. Most of the cases reported improved with special teaching and with time, some of them to the extent of becoming almost normal in reading ability.

Many writers have discovered a hereditary factor. Thus Stephenson[1] (1907) found six cases affecting three generations of one family. Thomas[2] (1905) and Warburg[3] (1911) found the hereditary factor markedly present in the many cases observed by them.

The theories advanced as to the etiology of this condition have been derived from the knowledge gained in observation of cases of alexia, or loss of ability to read through disease. In such cases lesions of the left angular gyrus have been found to exist, and this area of the brain has been fixed upon as the center for recording images or memories of printed or written words. Therefore congenital word-blindness is attributed to lack of development of this portion of the brain. Rieger[4] (1909) dissents from this view, maintaining that word-blindness is not related to any particular center of the brain but is only one factor or aspect of low intelligence, that a word-blind person is "idiotic" in that one respect. He proposes to substitute for the term "congenital word-blindness"

[1] Stephenson, "Six Cases of Congenital Wordblindness Affecting Three Generations of One Family," *Ophthalmoscope*, 1907.

[2] Thomas, "Congenital Wordblindness," *Ophthalmoscope*, 1905.

[3] Warburg, "Über Ageborene Wortblindheit und die Bedeutung für den Unterricht," *Zeit. f. Kinderforschung*, 1911.

[4] Rieger, "Die Kongenitale Wortblindheit nach den Berichten von Augenarzten," *Arbeiten aus den Psychiatrischen Klinik zu Wurzburg*, 1909.

partial idiocy in connection with reading of words alone or also of figures. Rutherford[1] (1910) found a case of word-blindness in a family showing symptoms of degeneration for three generations. Anent this he said, "The condition is thus seen to be of the nature of a reversion to the precivilized type as the result of the loss or destruction of certain of the later and more highly specialized determinants in the gametic idioplasm, and as such it falls in line with many of the phenomena of atavism." Warburg found that the condition existed only among the poor class and that many of the mothers of such children had borne many children, were wage-earners at the same time, and were undernourished. He thought that the defect was a result of this antenatal condition of poor nutrition. McCready[2] (1910), commenting upon the fact that girls constitute a small percentage of the cases, attributes the larger percentage of boys to the fact that the heads of boys are larger at birth than the heads of girls and more liable to injury. He also makes the suggestion that more boys may be reported because the education of boys is more important than that of girls and any interference is more likely to be reported, or that girls attend to their studies better. Jackson[3] (1906) proposes to substitute the term "developmental alexia." He says: "Spoken language is generally pretty well acquired before the effort to understand and employ its written symbols is commenced. Any lack of co-ordination between visual centers and those already developed to serve the faculties of hearing and speech would cause alexia. . . . . The co-ordinations required for the comprehension and use of language are extremely complex and the failure of these to connect with the visual impressions at any point would be a sufficient explanation of these cases."

The extent of congenital word-blindness was reported upon by Thomas[4] (1905), who as assistant medical officer of the London County Council was able to come into contact with all cases of back-

[1] Rutherford, "The Etiology of Congenital Wordblindness," *Brit. Jour. of Children's Diseases*, 1909.

[2] McCready, "Wordblindness as a Cause of Backwardness in School Children," *Penn. Med. Jour.*, 1910.

[3] Jackson, "Developmental Alexia," *A. J. of Med. Sc.*, 1906.

[4] Thomas, *op. cit.*

ward children who were required to be reported to the medical inspectors. He calculated that cases of congenital word-blindness existed to the extent of one in two thousand of the elementary-school population. He found that 25 per cent were girls. Warburg,[1] school physician of Köln, found fourteen among two thousand Volksschule children and seven others among four hundred Hilfsschule children.

Many of the cases reported in detail improved in ability to read with individual instruction. The reports of these cases go to show for the most part that they learned to read by first gaining an understanding of the phonetic principles underlying printed language. Fisher[2] (1905) advocated the "look and read" method, that is, learning printed words by sight merely and not through phonetic analysis, because it was "obviously desirable that the shortest route to reading should be taken." The case which he reported, however, learned by the method of phonetic analysis. The phonetic method has been advocated by all other writers who made suggestions for the education of such cases.

McCready[3] reported the methods used in teaching a twenty-year-old boy, who had not at that age learned to read, which are of value even though one may doubt the diagnosis of congenital word-blindness. At the time of becoming a patient of McCready the boy was a stutterer; he had been wearing glasses for eleven years; he was suffering from a high degree of hypermetropia with a moderate amount of primary atrophy of both eyes. The boy confessed that he stuttered often when reading to cover the fact of inability to recognize the words. These facts are sufficient to give greater credence to another type of explanation for the poor reading ability than the diagnosis of congenital word-blindness. In the treatment of this case McCready says:

> The object aimed at . . . . after the correction of the speech defect was the development of the visual word center in the right hemisphere, and the establishment of functional relationship between it and the auditory word center as well as Broca's center in the left hemisphere. To this end the patient

[1] Warburg, *op. cit.*

[2] Fisher, "A Case of Congenital Wordblindness," *Ophthalmic Review*, 1905.

[3] McCready, "Congenital Wordblindness as a Cause of Backwardness in School Children," *Penn. Med. Jour.*, 1910.

was first taught to use his left hand, as advised by Bastian in the acquired form of word-blindness and later by Claiborne in the congenital form. He was then made to receive oft-repeated impressions of words through every possible avenue, through his auditory center by hearing himself pronounce them, which last brought the glosso-kinaesthetic center into play by tracing over words, at the same time pronouncing them himself, thus bringing all the centers involved in speech in accord at the same time. In addition he was given visual impressions of words in as many forms as possible, written, printed, on the blackboard, cut out of cardboard, on the spelling board, etc. . . . . He can now read a page of printed matter composed of the more common words almost as quickly as a person with normal visual memory, and is able to read for pleasure. . . . . His progress in other elementary studies is equally satisfactory.

Thomas[1] recorded some observations of congenital word-blind children which are of interest:

One child by rapidly spelling the letters with the lips will arrive at the meaning of the word, another will trace the letters in the air or on the book with the fingers, and thus arrive at the meaning. A child . . . . was unable to assign the meaning to a word until he had written it himself; if he looked at the word "cat" it conveyed no meaning; if he had it spelled aloud to him he could not arrive at the word (he was a poor "audial" as well as a poor "visual"), if he spelt aloud the word himself he could not tell what it was; but immediately after he wrote it down his puzzled expression gave place to one of intelligence and he shouted the word "cat."

The foregoing paragraphs constitute a general account of the literature on congenital word-blindness from the standpoint of the medical profession which has been almost alone in recognizing and isolating this type of mental defect. Schröck[2] (1915) discusses in detail all previous reports with a bibliography of thirty-two names. The reader is referred to that article for further detail. A shorter account by Clemesha[3] (1915) may serve the same purpose.

On the psychological side but few references are found. Voss[4] (1914) gave a set of stimulus words to two groups of children, eight to ten, and eleven to thirteen years of age, respectively. One

[1] Thomas, *op. cit.*

[2] Schröck, "Ueber Kongenitale Wortblindheit," *Klin. Monatsbl. f. Auhenh.*, 1915.

[3] Clemesha, "Congenital Wordblindness," *Jour. Ophth. and Otolaryngol.*, 1915.

[4] Voss, "Über die Assoziationsprüfung bei Kindern nebst einem Beitrag zum Frage der Wortblindheit," *Zeitschr. f. d. ges. Neurol. u. Psychiat.*, 1914.

thirteen-year-old child was a case of congenital word-blindness. He found that this boy's reactions were on a lower plane of intelligence than those of the average or well-endowed children. He suggests that the association method may be of value in revealing the mental content of aphasia and speech-defect cases.

Witmer[1] (1907) reported a case which he diagnosed as *amnesia visualis verbalis*. The case was not one of true word-blindness, however. The child was found later to have a visual defect and improved in reading in a reasonable time after correction of this defect. In 1914 Witmer called attention to a class of children with mental defects as distinguished from mentally defective children. In this article a child was reported as a case of congenital word-blindness, but who at times suffered a degree of word-deafness and motor verbal aphasia. The description of the child shows him as too complex a case to be diagnosed as simple congenital word-blindness. What Witmer says upon the subject of special defects is worth quoting:

> While it is doubtless true that brain injuries may produce aphasia and amusia in children and if such injuries occur during uterine life the condition may properly be described as congenital, nevertheless I believe we must consider that congenital aphasia and amusia do not rest upon a pathological condition of the brain, but are indicative of a tendency to biological variation appearing in the affected children restrictedly as variation of the functional activities of language and music. Congenital aphasia and amusia are to be explained in biological terms, in somewhat the same manner as we should undertake to explain left-handedness in about 2 per cent of the race.

Town[2] (1912) in an article on "Congenital Aphasia," mentions the fact of inability to learn to read and includes it among the aphasias.

In the experience of the writer as examiner of problem children of the public school, those who find difficulty in learning to read quite out of proportion to their ability to learn other subjects and not at all or not adequately accounted for by general poor mental ability are frequently met with. Of this number thirteen have

[1] Witmer, "A Case of Chronic Bad Spelling, Amnesia Visualis Verbalis," *Psych. Cl.*, 1907; "Children with Mental Defects Distinguished from Mentally Defective Children," *Psych. Cl.*, 1913.

[2] Town, "Congenital Aphasia," *Psych. Cl.*, 1912.

been diagnosed as cases of congenital word-blindness in the sense in which the term has already been defined by the medical men quoted above. These were found in a school population of 42,900 in fifty schools. The necessary conditions of such diagnosis are: (1) Regular school attendance. (2) Reasonably good health and physical condition in general. No child showing evidence of poor nutrition, rachitis, much enlarged tonsils and adenoids, tuberculosis, kidney trouble, or other severe types of physical disability should be so diagnosed. (3) No sign of visual defect. (4) Persisting extreme slowness in learning to read; or total inability, manifested over one or more years of school life. (5) General mental ability good or average. (6) No other interfering factor, such as foreign language in the home, dislike of school, abnormal unresponsiveness to school or other social situations, etc. There are many cases of slowness in learning to read which are complicated by one or more of the contributing factors above. Learning to read is an exceedingly complex process requiring continuity and concentration of attention. Therefore any weakening of the physical condition interferes with the process and causes backwardness in the attainment of facility in reading to a much greater extent than other subjects are affected—granted that there is not innate mental defect.

The examination of the children here reported consists of a physical and mental examination and a report of health and developmental history wherever possible to obtain. In a few cases the latter were not obtainable because the mothers were working women or for some other reason were not seen.

The physical examination is such as can be made without the removal of clothing. It includes examination of teeth, of the nose and throat for breathing obstructions, hearing and vision tests, observation of nutritional condition, and other evidences of health condition. The vision test is made with the child standing just before an outside window and the test card placed opposite the window at a distance of twenty feet. The illiterate E chart is used. Indications of possible eyestrain, such as frowning, etc., reports of headaches, and blurring or indistinctness, etc., are sought for. No oculist's examination was obtained in any of the cases

here reported.[1] That the difficulty is not of sensory origin is evidenced by the following facts: (1) In nearly every case there was visual recognition of a greater or less number of words. The words which were recognized were not necessarily simple or short words. (2) The child's difficulty in every case consisted in the inability to learn phonics—to associate the sounds of letters with the letters themselves. (3) The children who were given special attention were taught phonics and with the mastery of that tool made progress in learning to read. One child became a normal reader, and the younger children under special teaching are at the time of the writing of this paper promising to become so. (4) They could all match words, that is, when shown an unfamiliar word could pick it out from among other unfamiliar words. All could point out the difference in two words differing by one letter. Those who were old enough to have learned to write could transpose a page of print into script without being able to read the script. These bits of evidence go to show that the difficulty was central and not sensory.

In the mental examination those tests are most relied upon which show the child's ability to think or reason. It is the practice of the writer to use such tests for innate intelligence as depend least upon experience or teaching which cannot or may not easily be evaluated by the examiner. In the examinations for mental ability of the general public-school clinic one cannot depend slavishly upon scales of measurement of mental age, however excellently these may have been constructed with reference to the average child and his experiences. The problem child is more or less outside the experiences usual to the child who is in all respects normal and must be examined and diagnosed always with reference to this possibility. It is not the writer's practice to determine a "mental age" in every case. The time to do this is added to the ordinary examination only occasionally. Some of the tests which enter into the various scales for determining mental ability are always used, for the most part those testing reasoning ability. The writer's attitude toward tests of mental ability was

[1] The writer is informed by oculists that eye trouble of sufficient gravity to constitute an interference can be ruled out in cases showing up normally in these respects.

discussed to some extent in the monograph, "Standardization of Tests for Defective Children." The writer can only apologize to the readers of this article who are accustomed to think of mental ability in terms of the mental age of some one of the scales for its measurement, but they can be assured that enough of the Binet and Terman scales were given in all but two cases to assure an approximate normal mental age, though a definite statement of a mental age in months cannot be made from the tests given. The thought of publication of results came only after the usual procedure for determining mental ability and a diagnosis of the cause of the child's trouble had been made for some time. Then, too, the data are the result of a gradual accumulation and were not obtained as one whole and connected problem but garnered out of the mass of all cases seen.

The mental examination is made along the following lines: First, by way of becoming acquainted with the child's general traits of responsiveness, social orientation, use of language, and to give him time to get on a friendly footing with the examiner he is asked about age, birthday, place of abode, father's occupation, number of brothers and sisters, their ages, grades in school, what they are doing now, etc. Children who know such family data are always glad to tell it. Any spontaneousness or volunteer information is encouraged with a show of interest that the child may feel free in expressing himself. Secondly, he is given school tests of reading, arithmetic, etc. A child's comprehension of arithmetic and his ability to deal with arithmetical problems is an important bit of evidence in making a diagnosis of mental ability. Many high-grade defective children learn arithmetical processes without the ability to use the same in thinking ways or to comprehend the mathematical meaning of what they have learned. A child may have learned the process of long division, for instance, without being able to find the solution of such a problem as, *If 5 pencils cost 10 cents, how much will you have to pay for one pencil?* He may by some accident of school life not have learned the processes of work with fractions taught in the fifth grade, but he may possess an understanding of the arithmetical meaning of fractions and do problems in reasoning with fractional parts not involving the

knowledge of book processes. The child who has learned arithmetic in normal fashion has shown his ability to think of abstract concepts in symbolic terms. The ability to use symbols to represent abstract conceptions is the most significant distinguishing characteristic of the normal human mind of our civilization.

In the reading tests one learns just how much the child can read, how well he can handle phonics as an aid in reading new or unfamiliar material, whether he gets information from reading, and whether he can organize the material read by giving a full account or an adequate account of it with the omission of only unnecessary details. With the children who cannot read their ability to make the perceptual discriminations necessary is tested by asking them to match words. For this test page 103 of the *Howe First Reader* is used. On this page many words are repeated several times throughout the selection. The examiner points to any one of the words the child does not know and asks him to find another just like it on the page. He is given all the time necessary to find it. A circle is drawn about the sample word to help him in finding it again for comparison with the words he thinks may fit the requirements. He is given several such until the examiner is certain he does or does not possess such powers of discrimination. On the same page in juxtaposition are the words "our" and "out." The child is asked to look carefully and say whether the words are exactly alike, and when he reports that they are not to point out with the pencil the parts that are different.

Other tests used for the purpose of giving expression to thinking ability are: the counting backward test, the difference test of the Binet Scale, the likeness tests of the Terman Scale, the puzzle tests one, three, and four of the Healy-Fernald Series, the crosslines A and B of the same series, a time orientation test, opposites test, the Healy pictorial completion test, etc. This is almost a minimum list for young children which is extended downward or upward with reference to the particular problem of the particular child under examination. To some children a test of color analysis is given. This test is possible because the color gray is not commonly taught in the first grade and many children do not know it. They sometimes hazard the names black or white,

but readily agree that it is not like the black or white shown them. They are then asked to make a name for it and often they decide to call it a faded or light black or a dark or dirty white. In the time orientation test, children of first- and second-grade age are not penalized if they do not know the names of the days of the week. They are graded satisfactory if they know that the current day is not Sunday, and say in answer to stimulating questions that it is a week day or a school day and can tell what they do on Saturday and Sunday. The time test can be made more and more complex for older children until it involves historical data. The memory tests commonly used are digits heard and the two Binet designs.

For other evidence teachers are questioned concerning the child's school reactions, his ability with the handwork of the school, apathy or diligence in work, etc.

In the following accounts of cases the attempt is made to describe the child's intelligence in terms of a few of his highest reactions and whatever his disabilities may be in terms of his lowest reactions, rather than to take the necessary space to describe the mental examination in detail. The children here reported showed up normal with respect to the various lines of inquiry mentioned above unless otherwise stated.

In general two reading selections are used as tests of reading ability. Selection A is on page 100 of the *Howe First Reader*, which is in use in the schools of Chicago. The selection is, therefore, familiar to all children who have passed through the first grade within the last five or more years.

SELECTION A

THE FOX AND THE GRAPES

One day a fox went down the road. "How hungry I am!" he said. "I wish I could find something to eat." Just then he saw a grapevine. It had ripe grapes on it. "Oh, how good those grapes look! I will have some," said the fox. But he could not reach the grapes. They were too high on the vine. He jumped high up in the air, but he could not get them. At last he went away hungry. The birds heard him say, "Those old grapes are sour. They are not good for a fine fox like me." But the birds knew better.

SELECTION B

It was a fine spring morning in the year 1826, about ten o'clock, when Mr. Amos Bliss, the manager and one of the proprietors of the *Northern Spectator*, might have been seen in the garden behind his house planting potatoes. He heard the gate open behind him, and without turning or looking round became dimly conscious of the presence of a boy. But the boys of country villages go into whosesoever garden their wandering fancy impels them, and, supposing this boy to be one of his own neighbors, Mr. Bliss continued his work and quickly forgot that he was not alone.

Case 1: Girl.—First seen in March, 1913; age ten years and one month; in the fourth grade, grade normal to her age. Physically only fairly well nourished and developed, enlarged tonsils, slight finger twitch. The mother did not come to the clinic when sent for, but sent word that the child had never been ill. No other members of the family were in school at this time, but two years later a brother of six years was making normal progress. Educationally she was doing well in all the work of the school except that she could not read. She was a favorite with teachers and pupils, who gave her special help in acquiring school instruction. She could do the arithmetic work of her grade very well and the handwork of the grade and was considered a very intelligent child. She was making rapid progress in music. In reading she could recognize some words, but was never certain of even the simplest ones. She herself never knew but that she might only be guessing at the word. She had no knowledge of phonics and, therefore, could not spell. At this time she was taken by the speech teacher for special instruction in reading. The teacher began with the elementary phonics work and gave her several periods a week of help.

When seen the second time in October, 1914, she then read Selection A in 38 seconds with no errors. She read Selection B in 2 minutes and 25 seconds with five errors, which, however, were worked out with approximate phonetic accuracy. She was able to read the selection by spelling out most of the words. She was at this time still making rapid progress in music, taking work in one of the best musical colleges in the city. She was in the

sixth grade and reported by her teacher as doing very good work, but was still having some help from her schoolmates.

She was again seen in May, 1916, in the seventh grade. Her teacher reported that she made good grades, and, being a teacher new to the school, was surprised that this child had ever been referred for psychological examination. At this time she read Selection B in 1 minute and 10 seconds with three errors worked out approximately correctly. She read a newspaper paragraph of twelve lines in 1 minute, making such errors as "stringent" pronounced "striget," "driving" pronounced "drivving," "verdict" pronounced "vedict." She was able at this time to give a very interesting introspection. She said that after being out of school for a week and not reading she would forget how to read, and then when going back to it would have to begin all over again to work out all the words phonetically. She said, "I look at the letters and then keep wondering and wondering what is the sound, and finally it comes back to me."

Case 2: Boy.—Was first seen in June, 1913; age thirteen years and five months; in the fourth grade. Physically he did not show up very well; there was a flabbiness of musculature; dark circles under the eyes; eyeballs yellow; Hutchinson teeth; some enlargement of the tonsils; slight occlusion of the breathing spaces. The mother, a working woman, could not come to the clinic, but the boy told of his poor health; said his doctor told him he had ulcerated stomach and at that time was on a diet of milk and rice. He had two older brothers. One was not at home and the boy did not know his school record. The other, fifteen years of age, was in the first year of the high school. The boy's teacher reported that he was very bright with the arithmetic of the grade. He was permitted to do the handwork of higher grades. He was at this time considered a mechanical genius. A year before he had made a magic lantern which was workable out of odds and ends assembled by himself. In reading he could recognize very few words; he had no knowledge of phonics and made absurd guesses in lieu of word recognition. He was very much worried about his inability to read and said that he had been receiving special help from his father at home at night. He was placed in the special room at

this time, but retained there for only a short time, since naturally the association with subnormal children was very distasteful to him and the special teacher was giving him no help. He was then sent to the fifth grade, through which he passed with a good record with the special help of his teacher, who read his arithmetic lessons and other lessons to him, and he was thus able to work through the grade and was promoted to the sixth grade. It may be remarked here that the arithmetic work of the fifth grade, involving fractions, is the most complex of all of the arithmetic in school. A child who has passed fifth-grade arithmetic creditably has proved his ability to make further progress in the arithmetic of the higher grades. He was then admitted to the technical high school, where he stayed two years. He there made a splendid record. After leaving the technical high school he was employed in an electric motor-shop and was there considered a fine electrical machinist. He left this place after a few months because of some labor-union troubles and was taken into the steel mills, first as an errand boy, but he was soon put upon machinist's work. He is now working there and considered a very satisfactory mechanician. His most recent teacher reported of him that he had learned to read material in connection with his work. The writer met the boy at one time outside the clinic during his technical school period and asked him about his reading ability. He said sadly, "Oh, I still have lots of trouble. There are some other boys in the school who have the same trouble." At this second interview he reported very good health and appeared to be in excellent physical condition.

Case 3: Boy.—Age eight years and five months when first seen by the writer in January, 1916. He had been examined upon various occasions previous to that by other members of the department of child-study who considered him not a mentally defective child. He had been in the first grade for a period of ninety weeks and was sent in by his teacher because of his inability to learn to read. The mother was not seen but sent in a health history by the nurse who brought the child, to the effect that he had never had any serious illness. He had had measles once and a slight attack of bronchitis at one time. Physically the boy was in good condition except for several carious teeth and a slight occlusion of

one nasal passage. There were three sisters of working age whose school records were not obtained. He tested eight years by the Terman Scale except that he failed to count backward from 20, but counted backward from 10. Since he had spent all of his school life in the first grade he probably had little acquaintance with numbers beyond 10, as the school program for the first grade does not go farther than 10 in the number work. He worked out number combinations, such as 7 plus 8 and 10 minus 6, with the use of marks. He did No. 4 of the Healy-Fernald Series, Construction Puzzle B, with only two errors, in 40 seconds. He succeeded with cross-line A of the Healy-Fernald Series at the first attempt; with cross-line B at the second attempt. His replies to a set of ten easy opposites were prompt and correct for seven of the number; he did not know the opposites for the words "truth" and "sick," and thought of the opposite for "sad" after the stimulating question, "If you are not sad, then how do you feel?" He named the seven colors, red, green, blue, yellow, purple, orange, and gray, but called the orange dark yellow. Conversationally he was bright and alert, though somewhat shy. The nurse who had visited the home said that the boy was devoted to mechanical toys of the constructive type, and the boy himself with glowing interest told of his love for these toys. He read Selection A in 7 minutes and 45 seconds with sixteen errors. Of the sixteen errors, when told that he had made an error, he corrected six. He could not succeed in recognizing such words as "said," "could," "were," "at," and "last," though these words occur many times in the *First Reader* which he had studied. The recommendation was made to the school that he be promoted to the second grade, where his interest in handwork would find expression and where his ability to learn numbers would receive training. Since it was apparent that he had some slight knowledge of phonics, though he was very little self-helpful with the phonics, it was hoped that he might take a new interest in reading with the newer material of the second grade and make some progress. Seven months later, when the writer sought to see this child again, it was learned that he had died. His mother said the cause of death was dropsy. The second-grade teacher said he was bright in everything but reading, of which "he could not get any idea."

Cases 4 and 5: Boys, twins.—Age nine years and one month when first seen in June, 1914. The mother said she suffered from dropsy during gestation. The babies were artificially fed and did not thrive until after three months of age because the food did not agree with them. Walking began at two years of age; talking at one; they had always been very healthy with only light attacks of measles, whooping cough, and scarlet fever. At the time seen they were both in fine physical condition except for slight occlusion of the breathing spaces and defective teeth, luetic in character. No other members of the family were of school age. At the time they were seen these boys had been in school for two and one-half years and had learned almost nothing. They had had various teachers, each one of whom was very ambitious to teach the boys to read since they showed up so very bright in other respects. They accomplished all the tests up to and through the ninth year of the Binet-Simon Scale except for making change for 20 cents and failing with the year and the day. They could not count backward from 20 since neither could count forward to farther than 12, but both counted backward from that point. A few of the Binet tests beyond this point were given to test thinking ability. Their ability to control thinking processes was shown throughout rather remarkably. For instance, when asked to give the day, neither one of them knew the exact day of the month, but one of them said, "This is the second week," and the other said, "There has only been one week before this." The day of the month was the eighth. Boy A failed with the absurdities test; Boy B did not, including the very difficult absurdity discarded from the latest Binet Series—*I am taller than John, John is taller than Henry, and Henry is taller than I am.* Boy A gave a correct definition for "honor," but failed on other abstract words. Boy B gave correct definitions for "honor," "charity," and "pity." Boy A had a memory span for seven digits; Boy B for six. Boy A did Construction Puzzle B, No. 4, of the Healy-Fernald Series with only five errors—a very good record. Boy B did the same test with fifteen errors—not a wholly bad record; he did it a second time upside down with reference to its previous position without error. Boy A did cross-line A of the Healy-Fernald Series at the first attempt but failed with cross-line B. Boy B did cross-line A at the first

attempt and cross-line B at the second attempt. In reading, Boy A could recognize visually a fairly large number of words but had almost no knowledge of phonics. Boy B could recognize very few words visually but could recognize a few simple words that were spelled to him, though he would make very absurd guesses at times. Boy A could find the answers to problems such as 7 plus 8 and 10 minus 6 and *If you had a dime and spend 2 cents for candy and 4 for an apple how much money will be left?* by the use of marks. Boy B had not yet discovered the method of finding the results of number combinations. Both these children were bright and alert, with a good use of language, talked about their own affairs connectedly and sensibly, and each one had the habit of saying, when given difficult tests, "Now just wait a minute, let me think," and the result at such times showed that they really had been able to think. They were both recommended for residence in the special room with special emphasis upon reading. They were seen again in January, 1915. They had made very little progress but still a measurable one in learning to read. They had made such a gain in phonics that they knew the phonetic value of individual letters but could not work out words. They had made some progress in number work, though this was not much stressed in their school work. Boy A was seen again in April, 1916. He then read Selection A in 65 seconds with but one error, corrected. He had such a knowledge of phonics at this time as enabled him to spell out and pronounce correctly simple one-syllable unfamiliar words. He wrote from dictation, "The cat ran away" spelling "ran," "run"; could not correct it. Boy B at this time had been sent to a parochial school in order to separate him from his brother because of their propensity for getting into mischief. At this time they were both working for a grocer, after school hours, who reported to their teacher that they were thoroughly reliable help and that they knew the stock better than he himself did.

Case 6: Boy.—Age eight years and eight months when first seen in April, 1914. He had then been for forty-eight weeks in the first grade and was showing up as exceedingly slow in learning to read. Physically he was in very good condition, well nourished, sturdy, strong, well developed, fine looking. At this time few

tests were given him aside from school tests. His attempts to read Selection A were very absurd. He pronounced "hungry," "warm" and then guessed "thirsty." He could spell out a few of the words correctly. He was able to do much more number work at this time than is taught in the first grade. He could work with combinations under 10 easily and do larger combinations by the help of marks on paper. His conversational abilities showed much intelligence. He told about his home life with good use of language, connectedly, etc.

At the age of nine years and four months, when next seen in December, 1914, he had spent two years in the first grade and more than one and a half in the second grade. He succeeded with all tests of the Binet-Simon Scale through nine years of age. His good thinking ability was shown in various little ways. For instance, when asked the date he at first gave it up but later gave it correctly, and when asked how he knew he said, "I thought about the letter my mama got yesterday." He had a memory span for seven digits. In answer to the problem, *If you have a quarter and spend 5 cents for candy and 3 cents for an apple, how much money will be left?* he said, "I would have 15 cents and 2 cents—17 cents." He did cross-line A at the first attempt, cross-line B at the second attempt. Upon this occasion he read Selection A in 3 minutes with three errors, corrected. He had to spell out many of the words phonetically. He read the first sentence of Selection B, spelling out "Bliss," "manager," and "house" phonetically correct. Could not work out "proprietor," "northern," "spectator," "planting," "potatoes." His teacher thought that he had improved very little in reading, though the reading test showed that he had made some progress. His teacher was giving him special help in the evenings after school. When he was promoted to the third grade his new teacher reported of him that he was good in numbers but that reading and spelling were very poor. She considered him not a good first-grade child in these two subjects. She said that he could work out words phonetically with some encouragement, but that he was not much inclined to do so of his own initiative. He received special attention with reading at home. He was seen again in February, 1917, having just been promoted to the fifth grade.

His teacher reported that he was good in the arithmetic work of the grade but poor in reading. He read Selection A in 1 minute, but was unable to recognize the word "grapevine." He read Selection B in 6 minutes, having to spell out most of the words and failing with some of them. He failed with the words "Bliss," "proprietor," "spectator," "because," "conscious," "presence," "villages," "whosesoever," "wandering," "continued." He wrote correctly from dictation, "The cat ran away"; "The printer made some cards." He did a problem in long division and showed the necessary knowledge of fractions for the work of his grade. He passed all the tests for ten years of the Terman Scale except for the reading and report test, which was not given. Of the twelve-year tests he was given the definitions test, passed; the fables test, making a score of $1\frac{1}{2}$; and the similarities test, passed. He had a memory span for seven digits.

Case 7: Girl.—Age seven years and ten months when first seen in March, 1915. Physically she was tall and well developed for her age, with no defects of any sort. She is the daughter of a successful physician, who reported that her health history was of the very best. A sister of nine was in the third grade and making good progress. A sister of eleven was in the fifth grade and doing satisfactory work there, but was reported by the principal as having been very slow in the beginning of her school work. This sister was aware of her past difficulty in learning to read. She said, "I didn't know how to pay attention then." She told of her despair with her small sister. She said, "I try to teach her, but she doesn't pay attention; when I point to a word and tell her to look at it I find her looking at the ceiling or at her shoe," and this without any desire to be recalcitrant and a real desire to learn to read. It was merely that the child was unable to find a point to which to attach attention. Our patient had spent sixty-six weeks in the first grade. In reading Selection A it was easily apparent that she read from memory of the context, rendering the first sentence, "One day a fox was walking along the road." She was able to go through the selection in this way, getting in all the items but quite unable to correct any of her very absurd errors. She had no knowledge of phonics. She was getting special help from a private teacher.

She knew much more about number work than was taught in the first grade; she knew most combinations under 10 and could work out more difficult ones by counting on the fingers. She could count backward from 20. She did the Healy-Fernald Construction Puzzle B with only three errors, working with apparent thoughtfulness. She did cross-lines A and B at the first attempt. She gave answers to the difference test of Binet and Terman in good clear sentences. She had a memory span for six digits.

She was seen again in October, 1916. She did not show up much better in reading than at the first test, but showed a greater knowledge of simple phonics. She could work out phonetically simple one-syllable words containing two consonants and a vowel, such as "fan," "pat." She was in the second grade at this time and doing normally well with all the work but reading.

Case 8: Girl.—Age eight years and five months when first seen in November, 1915; member of the second grade. Physically a well-nourished and a well-cared for child. Reported by the mother always to have been healthy. The parents are college-educated people in literary occupations. An aunt of this child is a well-known writer and literary critic. There were no other children in the family. The child was considered by her teachers as very bright. She was good in the number work of her grade, in story-telling, dramatization, etc. She passed the eight-year set of the Terman Scale and some tests beyond, including tests seven and eight of the twelve-year set. She did the Healy-Fernald Construction Puzzle B with two errors. Did cross-line A and cross-line B at the first attempt. She read Selection A in 9 minutes and 17 seconds. She worked manfully at the selection and succeeded in working out some of the words phonetically correct, such as "wish," "good," "last," "went," but at the same time failed on such words as "hungry," "eat," etc.

She was next seen in February, 1917, age nine years and eight months. She was in the fourth grade and reported by her teacher to be exceedingly apt in all the work of the grade but reading, though having improved in this subject recently. When she was given unfamiliar material to read she was adept at filling in the context in a logical and well-organized manner, and could thus

render the substance of the material read correctly, though able to recognize about one-third of the words. Whenever her ability to recognize a word failed she searched desperately ahead until she found words that she could recognize and then went on filling in the context quite logically. She read Selection B at this time in 6 minutes and 40 seconds, spelling out sixteen of the unfamiliar words phonetically correct. Such words as "spring," "morning," "manager," "planting," "turning," "supposing," etc., she worked out successfully. Failed with such words as "proprietors," "spectator," "conscious," "presence," etc.

[*To be concluded*]

TEACHERS' MARKS AND THE RECONSTRUCTION OF THE MARKING SYSTEM[1]

H. O. RUGG
University of Chicago

During the past ten years it has been increasingly evident to school men that one of the contributory causes of "failure" in the public schools has been a bad administration of the marking system. By and large in this country we fail 20 per cent of our student population. Furthermore it is relatively common, in many of our high schools at least, for teachers to fail upward of 30 per cent of their students. Recognizing that some of the difficulty may be traced to the inability of the pupil, that some of it clearly may be ascribed to a badly adjusted course of study and some of it to inefficient teaching, nevertheless there remains for the careful consideration of administrators and teachers the reconstruction and better administration of the marking system.

For just about ten years there has been much agitation in the educational press over the standardization of school marks. More than sixty articles have appeared in our various journals discussing the many phases of this problem. In 1915 the writer summarized the literature, finding at that time 39 references which dealt rather directly with the problem of the standardization of teachers' marks. Since that time no systematic summary has appeared which presented the essence of educational thought on this question or which reviewed the literature. It seems clear, therefore, that there is a need for a complete statement of present scientific thought on the matter and for the setting forth of a thoroughgoing program for the reconstruction of the marking system in our public schools. This article, therefore, is written with these three aims in view: to

[1] This article is intended to occupy a place in the list of the articles in the department of "Educational Writings" which review each month the literature in selected fields of interest.—H. O. R.

summarize the results of recent investigations, to present complete bibliographic material, and to present systematically the essence of current thinking on the problem.

I. THE MARKING SYSTEM NEEDS TO BE RECONSTRUCTED

Out of the discussion of the last fifteen years we find one point of absolute agreement, namely, that we should overhaul thoroughly the methods by which we measure the outcome of instruction in the public schools. There are three very apparent reasons for this statement: (1) the striking *variability* in teachers' marks; (2) the *unreliability*, the lack of consistency, with which teachers mark; (3) the *inconsistency in the way in which teachers distribute* their *marks*.

1. *The variability of teachers' marks.*—Of the 23 articles which have appeared in the past three years nearly every one presents evidence showing the striking variability in the marking of teachers. Various investigations have been reported showing the percentages of A's, B's, C's, etc., given by teachers in different systems of schools, within the same system, and within the same department. The previous article of the writer (16)[1] presented detailed evidence on this question. Such investigations as those of Starch and Elliott were quoted, in which the wide variability in judgments of teachers in marking student work was shown. Investigations reported by Chapman and Hills (5) are distinctly to the point in this connection. They show, for example, in their study of the distribution of college grades the very wide variability with which instructors even within the same department assigned the various marks of the marking scale. One instructor, for example, in several years of marking gave 400 per cent more E's than another instructor. Roberts (15) shows the same situation in the high school at Everett, Washington. Jackson (7) in a general article on the instability of teachers' marks shows the very great variability in the judgment of the examiners for the regents of the state of New York. Since we canvassed this matter so thoroughly in the earlier summary article and since the fact is so generally recognized by school people today, we need not debate it further.

[1] The figures in parentheses refer to the titles in the Bibliography at the end of this article.

2. *The unreliability of teachers' marks.*—In the same way it has become apparent to school men that teachers unaided by any objective scale will vary greatly in their judgments of the *same* student work. There are many investigations which establish this point clearly. Inglis (6), for example, in a recent article shows that of 122 high-school teachers marking an examination paper of 10 questions in plane geometry 20 per cent gave an *equal* value (10 per cent) to each question. Of the others the range in the value assigned to the various questions was from 0 per cent to 25 per cent and the average deviation was 2.4 per cent. Inglis also shows, by having the questions answered by pupils who had completed plane geometry four months before, that the relative difficulty of the 10 questions ranged from 10 to 298 points. Likewise in testing students on an algebra examination certain questions which had been marked as of equal value as others were found to be 15 and 16 times as easy as the others when worked by students. Furthermore as one studies the marks given by a teacher to the same piece of student work presented at successive times he finds even here distinct evidence of unreliability of marking. Studies referred to in the writer's previous article show clearly the following:

> Under such individualistic marking systems as are in use today teachers' marks do vary widely—there are large individual differences in teachers' marks of the same students in the same subjects, on the same examination papers and the same drawings and lettering samples. The mean variations in many of the instances tested run as high as 15 per cent. They practically never are less than 5 per cent. Steele found the mean variation of eight markers on the same examination replies to vary from 2.5 per cent to 8.1 per cent. Starch found mean variation among instructors in the same department marking English papers to be 5.4 per cent. According to Starch and Elliott the probable error (almost the same as the mean variation in these cases) of 142 high-school teachers marking the same English paper was 4.5 per cent; the same geometry paper, 7.5 per cent; the same history paper, 7.7 per cent; 50 per cent of the marks were separated by more than 9 per cent. The present writer (1914) found a mean variation for teachers of lettering marking the same 20 samples of 8.6 per cent, and among students trained in lettering of 11.4 per cent, both groups never having seen an objective scale in lettering.
>
> Starch and the present writer each found the variation in marking to be as large within any one department as that among departments and schools. Starch established a mean variation of 2.2 per cent in any one teacher's marking of the same paper. He attempts to determine the relative amounts

contributed to the total variability by the various factors affecting it. He concludes that the total difference in marking is due to differences in standards among schools, among teachers, in the same school or department, to inability to distinguish small differences in quality of school product, and to the change in an instructor's own standards. The relative amounts contributed by each may be determined from Plate 1 of the previous article (16).

The minimum size of the marking unit.—From the results of three of the four investigations bearing on this question of the size of the marking unit we may conclude that teachers, marking without an objective scale, cannot be expected to mark student work in any subject—mathematics, history, composition, lettering, etc.—within an interval of roughly 8 per cent.

3. *Inconsistency in the way in which teachers distribute their marks.*—A third type of evidence may be exhibited in showing the need for reconstructing the marking system. Not only do teachers' marks vary between themselves and within the same department, not only are they inconsistent as measures of the *same* student work, but also when they are distributed along the scale of ability we find that the shape of the distributions for different systems, for different schools, for different departments, and for different teachers is distinctly inconsistent. One teacher or school fails 30 per cent and the marks may be piled up at the low end of the marking scale. Another teacher or school gives 30 per cent of the student body marks of "excellent," or 90, etc., thereby humping up the marks at the high end of the scale. From detailed study of hundreds of mark curves it may be said that it is possible to find all forms of distribution of marks, from the form in which the marks are heavily "skewed" to the high end of the scale to the form in which the marks are piled up at the low end of the scale. There is, however, enough evidence that teachers' marks tend to be "skewed" to the high end of the scale. In the writer's previous article (16) were presented typical distribution-curves covering more than 171, 400 teachers' marks collected from 7 colleges and universities and from 39 high schools. These data certainly typify the actual condition of marking throughout the country, and conclusions made from them ought to hold for teachers at large. We may summarize the conclusions of the previous report thus:

1. Regardless of subjects of study, the typical distribution of teachers' marks results in a form or curve which may be described as skewed to the high

end of the percentile scale, i.e., the peaks of the curve will lie considerably above the mean of the base line upon which the curve is plotted and above the theoretical mean of the normal frequency-curve plotted on that base.

2. Less than 10 per cent of the several hundred mark curves, representing an aggregate of over 171,400 marks, may be described as perfectly symmetrical, and not more than two or three in a hundred of all those examined have been found to be approximately "normal."

3. The mark curves of students of advanced high-school classes are skewed much farther to the high end of the percentile scale than are the mark curves of students in corresponding elementary classes.

4. .....

5. There is evidence that another potent cause of the skewing is the presence of institutional "critical points" in the marking scale, e.g., the "passing" and "exemption" grades are almost always found to play an important rôle in shaping the mark curve.

II. WHY ARE TEACHERS' MARKS VARIABLE AND INCONSISTENT?

To answer this question we proceed at once to the crux of our problem. Teachers' marks are variable and inconsistent primarily because *teachers* in marking pupils *do not measure the same trait*, secondarily because teachers *do not have a common scale* for the evaluation of definite amounts of the traits measured; i.e., their marks are distributed on a purely subjective basis and their standards are not uniform. It is possible to secure from a group of twenty-five school people from twelve to fifteen different statements as to *what* is measured by school marks. It is impossible, furthermore, to establish exactly the same connotation in the word-statements of any two teachers. Camp (3) found, for example, in canvassing this situation with his teachers that teachers said that they—

mark "improvement," "ability," "seriousness," "purpose," "moral qualities," "interest in work," "equipment." The English department, for example, marks "conscious work," "improvement and ability," while the commercial department marks "accuracy," "neatness and promptness," "honesty," "courtesy," and "seriousness." The history department marks "endeavor and improvement."

Thus we find all sorts and kinds of terms used by teachers to describe the traits that they presume to measure in assigning marks. *Ability, capacity, interest, effort, performance, achievement, accomplishment*—a chaos of marking terminology which itself shows

clearly the need for standardization, just as it also represents one aspect at least of the movement to standardize what is measured by teachers' marks. Our program then ought to include a discussion of the important question discussed in the following paragraphs.

III. WHAT IS MEASURED BY TEACHERS' MARKS?

To provide a foundation for a clear discussion of this problem we shall do well to distinguish three different traits in our student population. Let us call them for convenience *inherited capacity*, *ability-to-do*, and *specific performance*. The writer has canvassed the more than sixty articles which have appeared during the past fifteen years and found these three traits apparently fairly distinguishable among the score or more that are in the minds of teachers. With the recent development of the measuring movement, of which standardization of teachers' marks is merely one phase, there has come a general acceptance of the distinction between these three traits.

It is helpful to think of pupils as we meet them in public-school classes as being distributed over three different kinds of scale: one a scale which represents varying degrees of *inherited capacity*, another a scale which represents varying degrees of *ability*, and a third a scale which represents varying degrees of efficiency in *specific performance*.[1]

Now the term *inherited capacity* practically defines itself. By it we mean the "start in life"; the sum total of nervous possibilities which the infant has at birth and to which, therefore, nothing that the individual himself can do will contribute in any way whatsoever. No one fact that has come from the study of heredity is of more importance to teachers than this fact that the capacity of an individual is determined by the "third and fourth generations" and not by anything that he himself can do. An important corollary to this statement is that an individual has a given place on the capacity scale and that only a combination of the most favorable conditions of training and work can operate to bring

[1] Limitation of space will prevent the writer from illustrating the following discussion graphically, as would be most helpful.

him to a point equally high on the ability scale. Obviously, since capacity has to do with the "start in life," in the public schools we *do not measure capacity.*

Now educational conditions (as found in the home, in the neighborhood, in the kindergarten, on the playground, in the "gang," in church, in the Sunday school, etc.) operating on "capacity" develop what we shall call "present-ability," the "*ability-to-do,*" which is present at any given time. If the educational conditions are favorable, then the position of an individual on the *ability* scale will approximate his true position on the *inherited-capacity* scale. Courtis has defined capacity as "potential-ability." To express more clearly what we mean by *ability* let us discuss *specific performance.* If an individual's present-ability is his ability-to-do, then by an individual's performance we mean what he does, i.e., his *specific performance* at work. We mean, for example, the recitations that he makes, the examination papers that he writes, the machine part that he constructs, the theme that he writes, the problems that he solves, etc. *It is these specific performances of children that we measure* in school practice. It is these that school marks *ought* to measure. And it is from the sum total of these that we *estimate ability-to-do.* To reiterate an important fact, we *do not measure ability,* we *estimate it from mere performances.* An illustration will make this fact still clearer. If we give a test to measure skill in a particular school activity (such as, for example, the removal of parentheses in algebra) to a pupil five times in succession, on successive days, his specific performances may be as indicated herewith. On one day, for instance, he works in one minute 18 examples, on another day 11, on another 24, on another 19, and on a fifth 16.

There are *two important characteristics apparent in the performances of school children.* The first shows us that *specific performance is unstable* and that any *one* test does not enable us to estimate accurately the *ability* of a given pupil. The variation of this particular pupil from 11 to 24 problems a minute illustrates the variability or instability of pupils' specific performances. Furthermore it determines our attitude toward the use of performance as guides for formulating judgments on their ability-to-do.

Now the second important characteristic of a pupil's performance, and one which bears upon our question still more intimately, is that the *average of successive performances is relatively stable.* For example, in the illustrations given the average of the first two performances is 14.5, the average of the first three is 17.67, of the first four 18.0, and of the first five performances 17.60. In other words, the averages of three or more successive performances are practically stable or constant, although the individual performances vary greatly in amount. Thus it is clear that just as capacity is *potential-ability*, so *ability-to-do* may be helpfully described as the *average of a few successive performances.* Furthermore it is helpful for teachers to recall that experimentation is showing that but a very few successive performances, say three or four, need to be measured on an individual pupil to permit a close estimate of his *ability.*

We may sum up this discussion, therefore, by pointing out that if an adequate method of measuring the specific performances of pupils can be devised then the chaotic condition which is apparent in our marking terminology can easily be cleared up. Interest and effort, moral qualities, attitude, etc.—all these intangible qualities contribute to the *specific performance* of the pupil and result in making possible an estimate of his total *ability-to-do.* In this connection Preston (13) has suggested that pupil's marks ought to be stated in the form of a fraction. That writer would compare the pupil's performance with his capacity, i.e., the denominator of the fraction, for example $\frac{8}{9}$, would represent our estimate of the pupil's *ability.* The numerator of the fraction similarly would represent the teacher's judgment of the extent to which the pupil is living up to it. This Preston suggests as an administrative device which will enable us to get rather more definitely at the various phases entering into the question of marking pupils in school. Thus, in résumé, teachers' marks ought to measure ability-to-do, this in turn having been estimated from the specific performances of the pupils. We shall point out later that this estimate will be valid as we substitute objective methods for our present subjective methods of measuring ability.

IV. HOW DOES ABILITY DISTRIBUTE IN THE GENERAL POPULATION?

Teachers' marks, if they are adequate measures of ability, ought to distribute over the ability scale in approximate conformance at least to what is known about the distribution of ability in the general population. Hence the very evident need for making use of a theoretical distribution of teachers' marks against which to check our judgment on ability as it is represented in our school classes. An extensive literature has developed concerning the form of the distribution of human traits. It has been referred to by many writers on teachers' marks and has been presented in summary fashion in a number of sources.[1] For this reason and because the writer is distinctly limited in space in the publication of this article our statement here will be very brief and seemingly dogmatic. The evidence for the statement, however, has been set forth in other writings.

The types of fact made use of by those who would standardize the marking system through the use of theoretical distribution-curves include the following: both physical and mental traits (and it is believed likewise moral traits) are found to fit reasonably well for purposes of practical application in education a mathematical curve known most commonly as the normal probability-curve. The arguments and the evidence adduced in the investigations of the past ten years lead us to believe that such a distribution-curve is reasonably adapted to either an elementary- or a secondary-school population. Granting, therefore, that we need to refer our judgment of scholastic ability to some theoretical distribution-curve and accepting this particular normal curve as a satisfactory type, we have three subordinate problems before us: (1) the determination of the number of divisions on the marking scale, (2) certain statistical points involved in the determination of the length of the scale, and (3) the determination of the number of individuals that ought to fall in the various divisions of the marking scale.

[1] For example, the reader will find a detailed statement of the statistical methods underlying the use of curves representing the distribution of human traits in the writer's *Statistical Methods Applied to Education*, chap. viii.

V. NUMBER OF DIVISIONS USED IN THE MARKING SYSTEM

In the previous article of the writer the recommendations of 9 investigators were shown with the proposed percentages for each of the divisions of the scale. At that time it was shown that all but one of these investigators recommended a five-division marking scale with the use of letters A, B, C, D, E; of words such as "excellent," "superior," "medium," "inferior," and "poor"; and in many cases of parallel percentile limits on the marking scale. Nicolson (12) has recently collected the practices of 64 colleges approved by the Carnegie Foundation. He finds that 36 of these colleges use a five-division marking scale and that among the others there is almost no central tendency. Some colleges use as few as 3 groups and others as many as 12 and 15. A large number generally accompany the use of A, B, C, D, etc., with the use of plus and minus signs. Furthermore it is shown that it is relatively common at the present time in the administration of college marking systems to translate letter marks into percentile limits on a numerical scale. For example, A = 90–100, B = 80–90, etc. We may sum up the situation for our colleges and high schools by pointing out that there is a fair agreement upon a five-division marking scale. We have already quoted the various suggestions made in the previous article concerning the minimum size of the unit in the marking scale. This confirms our judgment that five divisions can be handled accurately by teachers.

VI. PERCENTAGE OF INDIVIDUALS THEORETICALLY FALLING IN EACH DIVISION

Dividing up the marking scale, therefore, into five parts we are concerned to know what proportion of human beings should be found in each of the various divisions of the scale. Without introducing a technical discussion of the statistics of the probability-curve let us say that one can obtain these facts from tables which have been constructed showing the percentages of the total area of the curve which fall between various points on the base line. A complete discussion of this matter can be found in the reference previously given. To apply the normal probability-curve rigidly to our problem would lead to a statement that if we use a five-

division marking scale the percentages of pupils that ought normally to be expected in each of the groups would be either 7, 24, 38, 24, 7, or 3.5, 24, 45, 24, 3.5, depending upon whether one breaks off the base line of the normal curve at $2\frac{1}{2}$ or 3 times the standard deviation (the latter being used merely as a unit with which to divide the base line of the curve). It is clear, however, that a sane recommendation concerning the use of a theoretical curve will lead to the statement that a percentile distribution of pupils in five divisions ought to approximate, but not necessarily to follow rigidly, any specific set of percentages. In other words, the writer would prefer to say that one would expect to find from 5 to 10 per cent A's, 20 to 25 per cent B's, 35 to 40 per cent C's, 20 to 25 per cent D's, and 5 to 10 per cent E's in each reasonably *large* group of our public-school pupils (say 100 or more). Furthermore that this device ought to be used merely as a rough check upon the total distribution of marks in various divisions of the scale for large numbers of our students and not for single classes. After assigning one's marks in a given semester the use of such a device is very helpful in making one critical of the accuracy with which he has distributed his marks.

VII. THE RECENT USE OF THE NORMAL CURVE IN DISTRIBUTING MARKS IN SCHOOLS AND COLLEGES

The literature of the past three years has revealed a number of active attempts by school and college administrators to standardize the marking system through the use of a theoretical distribution. Due to the activity of the University of Missouri, under the leadership of Professor Meyer, many colleges and schools have adopted a particular form of distribution of marks and have administered the marking system in such a way as to force a given percentage of marks of instructors into the various divisions of the scale. The use of the so-called "Missouri system," therefore, which is now in operation in such institutions as the University of Texas, reported by Benedict (2); Goucher College, reported by Kellicott (8); and Kansas Agricultural College, reported by Reisner (14), illustrates the tendency. Public-school administrators likewise can feel sure that their colleagues in the administrative world are now making

use of methods of standardization in improving the marking system. The aim in general is to cut down the variability with which teachers mark, so as to make their marks consistent in form of distribution with the abilities which they are supposed to measure. Superintendents are beginning to report systematic endeavors to get teachers to distribute their marks in rough accordance with the normal curve. A number of these attempts have made use of a five-division scheme which shows the following percentages: 5, 20, 50, 25. An article reported by Superintendent Walls, of Kent, Ohio (21), presents data illustrative of the success attained by school administrators in changing the distribution of teachers' marks from the badly "skewed" form which we commented on earlier in the article to one more closely approximating symmetry. To illustrate concretely the results of such adjustments in administration we quote from one of his tables which gives the percentile

HIGH SCHOOL

Summary of grades of six teachers. Percentage of grades assigned to each rank

YEAR	PERCENTAGE				
	Below 60 V.P.	60–74 Uns.	75–84 F.	85–94 G.	95–100 Ex.
1911–12	0.8	5.9	21.4	56.1	15.8
1912–13:					
First Semester	0.8	12.1	39.6	42.5	5.0
Second semester	1.1	12.0	43.6	38.0	5.3
1913–14:					
First semester	3.0	13.0	42.0	36.0	8.0
Second semester	4.0	12.0	39.0	38.0	7.0

ELEMENTARY SCHOOLS

Summary of grades of fifteen teachers. Percentage of grades assigned to each rank

YEAR	PERCENTAGE				
	Below 60 V.P.	60–74 Uns.	75–84 F.	85–94 G.	95–100 Ex.
1911–12	1.0	6.8	23.6	48.0	20.6
1912–13:					
First semester	3.4	11.7	30.0	38.4	16.5
Second semester	3.2	5.1	28.2	41.4	22.1
1913–14:					
First semester	5.0	11.0	43.0	35.0	6.0
Second semester	3.0	7.0	39.0	42.0	9.0

distribution of marks for five successive semesters under both his old system and his new one. The writer has had submitted to him in manuscript form other distributions showing the same sort of procedure with, in general, the same sort of results.

VIII. THE NEED FOR CLEAR WORD-DESCRIPTIONS OF "ABILITY" IN OUR MARKING SYSTEM

These proposed reforms have to do with the general adequacy, with the general validity, of the teacher's measurement of pupil-ability. Thus far the workers in this field have proposed the standardization of the marking system primarily through the use of theoretical distribution-curves which are believed to represent the distribution of ability in the general population. What we have done in the movement up to date is to translate our desire for scale measurement in marking pupils into a system of numbers, or into a system of letters, without defining clearly what the letter or number represents. Now in the practical adaptation of a marking scale either letter or numerical, an important consideration faces the administrator: how shall various degrees of *ability-to-do* in school children be defined?

It seems quite clear that neither the number nor the letter has carried a common meaning to the student, to the teacher, and to the administrator alike. We must not forget that these three groups, students, teachers, and administrators, have to "think together" concerning school marks, and our aim is to build a marking system simple and economical to administer, and yet one which will enable these three sets of minds to agree on the marks to be put on the results of instruction. Now the common avenue of communication is words. We think together only when we use words in communicating, about whose connotation there is no doubt. Hence in our practice of using letters and numbers we have forsaken a worded system of measures or marks and have made use of a set of letters or, worse still, a set of numbers whose meaning has not been interpreted in commonly used words. Hence the differences in interpretation; hence the bickering about 79, 78.3, 81, 80, etc.; hence the ridiculous, yes criminal, practice of failing children at 69 or 68 when the passing mark is 70!

If this is one of the chief causes of our marking difficulties the ultimate remedy stands out clearly: *substitute clear word-statements for abstruse literal and numerical symbolism.* First, the marking system for each subject of study should consist of a set of word-descriptions of "ability" for various grades of students; secondly, these statements, these standards, should be expressed in words common to the thinking of pupil, teacher, and administrator; thirdly, they should be brought to the attention of each group constantly enough to result in thorough acquaintance with the marking standards and in relatively accurate use of them. That is, they should be printed, charted, and placed before teacher and pupil constantly. If not in the textbook, then in charts on the walls of the classroom, in printed statements to be pasted into the textbook, in printed folders to be sent home to parents. Instead of being told that John's mark is 79 in mathematics or 92 in English, pupils and parents alike should be told that John's mark represents the ability to do such and such things, to write equal to 60 on the Ayres scale, to spell successfully a given proportion of the eighth-grade words in such and such a list, etc. Definiteness of understanding on the part of all concerned should be the outcome of the setting up of such types of standards. It is a difficult thing to do, this writing out of word-statements of degrees of ability. It is, however, one of the most important co-operative tasks of teacher and administration.

Thus it will be possible to define relatively accurately the performances (and from these to estimate the ability) of a student in the top fifth, or of a "failure," a "good," a "superior," or a "mediocre" student. For convenience, of course, we may find it desirable to use letters or even numbers to typify, to represent economically the degrees of ability—but the foundation of the scheme is the "*word-description.*" Furthermore it is difficult to see how any sound system can be installed without using absolutely objective measures as illustrated above. A "passed" student in handwriting in the elementary school is one whose ability-to-do is represented by a particular sample on one of the standard handwriting scales (implying training on the part of both teacher and

pupil in judging handwriting on objective scales, and hence fair agreement in measurement and in interpretation of the same piece of student work).

IX. THE IMPORTANCE OF "RANKING" PUPILS IN ORDER OF ABILITY

There are two possible approaches to the problem of reconstructing our marking practice. One involves the use of an absolute definition of ability, the other the use of measurement by relative position.[1] The foregoing proposal to define grades of ability in carefully worded statements and separately for each subject of study represents, in the writer's opinion, the best possible practice that schools can adopt today. Involved in this application of standardizing methods in the improvement of the marking system there is, however, an important subordinate step. Teachers and administrators can and ought to make use of the helpful practice of *marking pupils by ranking them first in order of ability*, following up the ranks thus obtained by approximate assignment to the various letter or number groups of the marking scale. This in turn should be checked up by distributing pupils to different groups by the use of some such percentile allotment of the normal distribution as 5 to 10, 20 to 25, 35 to 40, 20 to 25, and 5 to 10 for successive

[1] *A proposed method of using the 100 per cent scale.*—The writer wishes to suggest in this connection that if a school system cannot bring itself to give up a detailed number scale which distinguishes pupils in terms of specific numerical values on a 100 per cent scale, common agreement in the thinking of pupil and teacher would be enhanced by using the *whole* percentile scale from 0 to 100. Present practice in American schools makes use of about 0.3 to 0.4 of the 100 per cent scale, the passing mark being placed *arbitrarily* at 70, 75, or 60. Teachers are thereby forced to distribute the members of their classes by separate numerical measures over a scale of 25 or 30 units.

To use consistently the whole 100 per cent scale would imply either the *arbitrary* placing of division points on the scale (at the present time it is done in this fashion, the various marking divisions often being unequal in length, for example, 70 to 80, 80 to 90, 90 to 95, 95 to 100) or the determination of these points by reference to the distribution of individuals over the base line of a distribution-curve. The latter method can now be used, taking the base line of the normal probability-curve as a scale of ability and dividing it into five divisions (or the number that our thinking leads us to take as most practicable).

The placing of the passing mark.—If we assume the normal curve as the foundation of our distribution of ability and then divide the marking scale into a given number

fifths of the scale. Lacking an approximate statement of absolute abilities such as would be represented by a detailed word-statement of various grades of ability the teacher can rank pupils in order of ability, at least in descending *groups* of ability, and thereby measure them by their relative position in the total groups. This relative position can, closely enough for practical purposes and also fairly easily, be turned into definite marks by assigning certain approximate percentages of the entire pupil population to various groups, deciding the "border-line" cases perhaps on subjective judgment. At least the rough use of the distribution-curve will in this case result in a more critical attitude on the part of the teacher toward her own judgment and in the long run in a sounder measurement of ability in her classes.

X. A PROGRAM FOR THE RECONSTRUCTION OF THE MARKING SYSTEM

As a summary statement of the present status of thought the following steps are both desirable and practicable as means of thoroughly rebuilding our public-school marking system:

1. The evident lack of reliability and consistency in teachers' marks and their evident inaccuracy as measures of ability demand of administrators the *initiation of campaigns of education among*

---

of parts we automatically establish either one of two important facts, (1) the value of the passing mark and (2) the proportion of pupils who ought to fall in the various divisions of the scale. If we make use of the whole 100 per cent scale, assume the normal curve as representing the distribution of ability, assume the proportion of our group of pupils above which we shall not permit ourselves to fail students, then we find our passing mark locating itself somewhere in the region of 15 to 20 on the scale. That is to say, instead of setting up an arbitrary number, such as 70 or 75, which has no direct meaning in terms of pupil-ability, we now set up an upper numerical limit concerning the number of pupils who evidently are unable to master the essentials of our courses of study. If we take as this upper limit, say, 5 to 10 per cent, perhaps 7 or 8, then examination of the area of the probability-curve shows us that if we go over, say, 20 points on the base line from the 0 point at the left we have included roughly 10 per cent of the area of the curve. If our "limit" of failure is smaller, then our "passing mark" will be lower. Furthermore the specific location of the position of any pupil on this scale of ability may be defined rigidly in terms both of relative position and of absolute numerical score. An individual who receives a mark of 75, for example, is now an individual located definitely with respect to rank in the group, provided the group distributes in ability in accordance with the area of the curve which has been used.

their teachers to a recognition of the importance of the facts set forth. In the carrying on of such campaigns helpful administrative devices have been found to be:

a) The publication of the distribution of teachers' marks each semester in open bulletins.

b) The discussion of these bulletins in teachers' meetings.

c) Insistence that each teacher tabulate and plot graphs of her distribution of marks each semester before submitting them to the office.

d) Requiring reading and discussion of the use of distribution-curves in marking.

e) Insistence that each teacher rank her pupils prior to assigning final marks, whether on examination, "paper," "quiz," or semester's work.

f) The appointment of departmental committees with instruction to define, *in detailed word-statements*, each grade of ability represented on the marking scale.

g) The use of objective scales and tests in all those subjects and for all those types of subject-matter for which such tests and scales are now available.

h) The use of "general-ability" tests for purposes of classifying pupils and of detecting various grades of ability in our pupils early in the course of instruction.

2. If letters are now used in a school system certainly each one should be merely a symbol to signify the abilities-to-do which have been defined in very detailed worded statements, understood alike by teacher, administrator, and pupil, in terms of which the instruction has constantly been oriented.

3. If numbers are used they should be employed only as economical symbols to represent the various groups or divisions of the marking scale; that is, only one number (for example, the median one) should be used to typify a group of marks (as, for example, the "excellent" group, the "A" group), instead of using, as is now common, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. Thus the only numbers used would be such clearly separated numbers as 95, 90, 85, etc. Numbers in themselves would cease to have the "picayunish" absolute differences in meaning that they pretend to now and

would merely stand for abilities which have been distinguished clearly through detailed worded statements.

4. As a practical and helpful tool in the adequate measurement of student work, measurement by ranking with subsequent transmutation to absolute marks by means of a distribution-curve (preferably the normal probability-curve) is very desirable.

5. Probably few of our school administrators will feel that they can afford to change their 70 per cent passing-mark to one of 20 per cent or 15 or 25 per cent. In connection with the suggestion made in the footnote on p. 715 the writer would suggest that if a general overhauling of the whole numerical scheme could be made it would doubtless be a helpful revision from the standpoint of practical interpretation.

XI. BIBLIOGRAPHY

The following articles and monographs were published on the subject of teachers' marks during the period January, 1915, to January, 1918. Reference No. 17 in the following list gives a complete bibliography (39 items) to January, 1915.

1. Albright, G. H. "How Teachers Mark," *School and Society*, III (1916), 462.
2. Benedict, H. Y. "Standardization of Grades at the University of Texas," *School and Society*, III (1916), 105.
3. Camp, Frederick. "Some 'Marks': an Administrative Problem," *School Review*, XXV (December, 1917), 697.
4. Canning, J. B. "The Meaning of Student Marks," *School Review*, XXIV (1916), 196–202.
5. Chapman, J. Crosby, and Hills, Myra E. "A Statistical Study of the Distribution of College Grades," *Pedagogical Seminary*, XXIII (1916), 204–10.
6. Inglis, Alexander. "Variability of Judgments in Equating Values in Grading," *Educational Administration and Supervision*, II (1916), 25–31.
7. Jackson, Nelson A. "Grading Papers in Geometry," *School Science and Mathematics*, XVII (1917), 483.
8. Kellicott, W. E. "Grading at Goucher," *Science*, N.S., XLI (1915), 909.
9. Kelly, F. J. "Teachers' Marks," Teachers College, Columbia University, *Contributions to Education*.
10. Maxwell, G. E. "The Grading of Students," *School and Society*, VI (June 28, 1917), 113.
11. Miller, Wade E. "The Interpretation of School Grades," *Pedagogical Seminary*, XXIV (1917), 384–90.

12. Nicolson, Frank W. "Standardizing the Marking System," *Educational Review*, LIV (1917), 225–37.
13. Preston, Carolyn E. "Are Our Schools Hitting the Mark?" *Educational Review*, LI, 275–85, esp. 281 ff.
14. Reisner, Edward H. "Grading System Adopted by the Kansas State Agricultural College to Go into Effect September, 1916," *Educational Administration and Supervision*, III (September, 1917), 419.
15. Roberts, Alexander C. "A Study of the Marking System of the Teachers of the Everett High School," *Educational Administration and Supervision*, III (October, 1917), 485.
16. Rugg, H. O. "Teachers' Marks and Marking Systems," *Educational Administration and Supervision*, I (1915), 117–42.
17. Sechrist, Frank K. "The Process of Examining," *Educational Review*, L (1915), 399–417.
18. Smith, R. C. "Teachers' Marks in High School," *American School Board Journal* (November, 1917), p. 18.
19. Starch, D. "Can the Variability of Marks Be Reduced?" *School and Society*, II (1915), 242.
20. Van Cleave, J. H. "Distribution of Grades in an Elementary Zoölogy Course in the University of Illinois," *Educational Administration and Supervision*, II (1916), 251–53.
21. Walls, W. A. "Variability of Grades Assigned to Pupils by Teachers," *American School Board Journal*, L–LI (January, 1915), 8.
22. Weld, L. D. "A Standard of Interpretation of Numerical Grades," *School Review*, XXV (June, 1917), 412.
23. Witham, Ernest C. "Teachers' Marks in Eighth A, B, and C Division," *Educational Administration and Supervision*, II (1916), 243–51.

EDUCATIONAL WRITINGS

II. COMMENT ON CURRENT EDUCATIONAL WRITINGS

1. *A new set of elementary-school arithmetics.*—The various textbooks in arithmetic that are being issued from time to time show a marked tendency to comply with the demand for a reorganization of the course of study. Some of the more radical texts have met the demand boldly by selecting the subject-matter almost entirely from the social and economic life of the community. Others, more conservative, have retained much of the traditional organization of the subject, but have tried to give it social content by a closer application of the principles to the everyday problems of the farm, the household, the industries, and the community interests.

The method of approach to the subject in the two types of texts is equally different. The radical texts motivate the work through the child's interest in plays, games, construction, dramatization, etc. Each new topic is developed through a series of projects, or grouped problems, before the principles involved are abstracted and drilled upon. The conservative texts, on the other hand, stress first the teaching of the principle and later its multiple application to practical business situations. It is a noticeable and encouraging fact that both types show a marked tendency to restrict the subject-matter to present-day situations. Along with this tendency there is an increased emphasis upon greater accuracy and speed in the fundamental processes. Practically every recent text examined contains either standardized drills or ample provision for frequent reviews of the essentials.

The Hamilton *Standard Arithmetics*[1] are representative of the more conservative texts. The first two books of the series aim primarily to give a mastery of the four processes with integers and fractions. The third book, designed for the seventh and eighth grades, places chief emphasis upon the applications of these to business problems. The twelve pages of industrial problems in Book III taken from the farm, the household, and the mercantile house are among the best in the book. Good problem material is found under the following headings: "Stocks and Bonds," "Paying and Collecting Money," and "Government Income and Expenditures." Though these latter are practical business problems, they present adult situations. The skilful teacher will need to supplement them by much detailed descriptive explanation of business practices. Simple work in algebra is given in seventeen pages,

[1] *Hamilton's Standard Arithmetic*, Book I, Book II, Book III. New York: American Book Co., 1917.

introducing the equation in the solution of problems. Thirty-four pages of the Appendix are devoted to the greatest common divisor and the least common multiple, the metric system, and similar topics recommended for elimination by the Committee on Minimum Essentials.

The first and second books are more formal than the third. The first book, for second, third, and fourth grades, is "devoted mainly to the forty-five number facts of addition and subtraction and to the elementary treatment of the fundamental operations." The second book contains the work for the fifth and sixth grades, and includes common fractions, decimals, and "percentage with its simpler applications." Both books have frequent drills and tests for accuracy. Many of the problems relate to the common affairs of life, such as marketing, traveling, furnishing a house, and keeping simple accounts. These are, however, far too few in number.

The books upon the whole are a distinct improvement over the former editions by the same author even though they retain the formal treatment and the spiral method characteristic of the earlier books. They contain an abundance of good problem material, but the formal presentation of it leaves much for the teacher to explain, describe, and vitalize.

K. L. McLAUGHLIN

---

2. *A source-book for students of the education of the feeble-minded.*—A recently published bibliography of literature on the Binet-Simon scale, covering the four years just prior to 1917, contains 457 titles. This total gives one a general notion of the extent and intensity of the present interest in the study of defectives and retardates. This interest has to a large degree centered among the experimentalists and administrators in education. The definite diagnostic possibilities of the Binet scale made a tremendous appeal to American educators. Binet testers, inspired largely by the work and optimism of Dr. Goddard, of the Vineland Training School, sprang up in great numbers all over the country. "Nothing else is needed in the great mass of cases than this test," said Goddard, referring to the Binet-Simon series. Teachers were led to believe that the scale was a marvel of accuracy. In the course of this movement many thousands of public-school children have been tested by the Binet scale, and now we seem quite ready for general summaries and interpretations of results.

The teacher looking for such summaries will find them in the first two chapters of *Problems of Subnormality*, by Dr. J. E. Wallace Wallin.[1] The author is a psychological investigator of repute, is pedagogically well informed, and is director of the psycho-educational clinic of the St. Louis public-school system.

Dr. Wallin believes that the fundamental problems relating to feeble-mindedness are four in number: (1) diagnosis, (2) treatment, (3) after-care, and (4) prevention. Basic for all others is the problem of diagnosis. The

[1] *Problems of Subnormality.* By J. E. Wallace Wallin. Yonkers-on-Hudson, N.Y.: World Book Co., 1917. Pp. xv+485.

range of the book can be gathered from a brief statement of the important points covered in the seven chapters: changing attitudes toward the subnormal, the standard for diagnosis, organization of work with defectives, the problem in its educational and social bearings, epilepsy, state provisions, and a final chapter on eugenics.

In the first and second chapters Dr. Wallin examines critically the results of a considerable number of investigations and concludes on the basis of these results that feeble-mindedness is not a disease, but a case of arrested mental development; its diagnosis should therefore rest with the clinical psychologist and not with the medical practitioner; the rôle of the mere Binet tester should be better understood; he is to the clinical psychologist what the nurse is to the physician; Goddard's standards for moronity, Binet XI and XII, led to the estimate that 2 to 4 per cent of the children attending public schools are feeble-minded; the actual figure, however, according to the author, is less than 1 per cent, and the number of feeble-minded in reformatories, assignation houses, and penal institutions varies from 10 to 25 per cent instead of from 50 to 97 per cent, as has been reported; a better diagnostic standard, in agreement with Simon, would place the upper threshold of feeble-mindedness near the tenth year on the Binet scale; *special* classes should be arranged for the feeble-minded, *ungraded* classes for the backward; the school must organize classes for the feeble-minded, because the state has not adequate facilities for their training; and that they are worth training has been known since the experiments of Itard on the Wild Boy of Aveyon about 1800.

After chapters i and ii, which constitute more than half the book, school administrators should read in chapter iii the carefully worked-out plan proposed for the organization of work with feeble-minded and backward children in St. Louis. This plan, in twenty definite statements, constitutes an important declaration of principles, one that could be pondered with profit in the establishment or readjustment of work with subnormals anywhere.

Of the four remaining chapters three are modified reprints of addresses. The final paper on eugenics is only of indirect concern to teachers. Eugenic measures supplement pedagogic ones in the general program of racial improvement. Eugenics works through the channels of physical heredity, education through social heredity.

The book has an introduction by Superintendent Withers, of the St. Louis schools, and contains an excellent bibliography.

FREDERICK S. BREED

---

3. *Teaching pupils to study.*—During the last few years a number of books have been published which deal with the problem of training pupils how to study. For the most part these books have discussed the general principles underlying effective study habits. These discussions have stimulated a considerable amount of interest and co-operative effort on the part of teachers

throughout the country. During the winter of 1914–15 the teachers of Topeka, Kansas, under the leadership of Superintendent H. B. Wilson, made a study in this field. During the latter part of 1914–15 and throughout the next year some excellent results were secured from the efforts of the teaching staff to train the children in right habits of study. These were edited by Superintendent Wilson and published in monograph form in the "Course of Study" series of the Topeka, Kansas, publications. The immediate object of the monograph[1] was to supply help to the teachers of that city in their efforts to train pupils in effective methods of study and work. The monograph received favorable mention in the *Journal of Education*, and the requests for it became so numerous that it was published in book form.

The content of the book is divided into two parts. The first outlines the factors in study under the following topics:

I. Providing Specific Aims
II. Gathering Data
III. Supplementing the Thought
IV. Judging What to Do and the Worth of the Data
V. Organizing the Data
VI. Maintaining a Tentative Attitude or Holding Judgment in Suspense —How Secured
VII. Reaching a Conclusion
VIII. Applying the Use of Conclusions
IX. Memorizing
X. Preserving Student's Individuality
XI. Establishing Right Habits of Study

In connection with the discussion of each of these topics illustrations are given showing how progress is secured in the various grades. These illustrations are suggestive, but should be given in greater detail to be most helpful. The second section presents a few detailed reports showing what different teachers did in training pupils to study. The results published in this book indicate the value of co-operative effort on the part of teachers in solving a significant classroom problem. The suggestions which are offered with regard to teaching children how to study will prove valuable in the hands of progressive teachers. The results which are reported do not represent a final solution of the problem.

W. S. GRAY

---

4. A work[2] has appeared giving a systematic account of the progress of civilization and comprising eight main and two supplementary volumes. Of the main volumes two are devoted to the history of antiquity, three to the

[1] *Teaching Pupils How to Study.* By H. B. Wilson.

[2] *Progress of Nations.* Charles H. Sylvester (Editor-in-chief). An account of the progress of civilization prepared with the assistance of eminent educators from leading colleges and universities. 10 vols. Chicago and Kansas City: National Progress League.

history of Europe, and three to the history of America. One of the supplementary volumes is made up of what is termed a chart course. It contains a three years' course of study in outline form based on the eight main volumes. Besides the outline of three years of work in history this volume also contains a number of graphic charts, source extracts, and illustrations. The other supplementary volume is called *Graphic History*. It is made up of three parts, as follows: graphic history, manual of methods, and a supplement. The graphic history relates to the United States, an adequate description of which would be difficult to give. One must really see the illustrations to appreciate them. A mere enumeration of some of the subjects illustrated will give some notion of this part of the work: modes of travel, habitations, slavery in the United States, the Panama Canal, acquisition of territory, political parties, each administration, the Civil War, the Revolutionary War, and each of the thirteen colonies.

The part of this volume devoted to methods contains 126 pages. The discussion relates especially to United States history and was written by Professor A. H. Sanford, of La Crosse, Wisconsin. Such topics as purposes in teaching history, the use of the textbook, the use of outlines, reviews, the use of supplementary reading, teaching cause and effect, and many others of a similar nature are discussed at some length. This and the foregoing section would be of much interest to grammar-grade and junior high school teachers of history. Part III or the Supplement of this volume contains material relating to the administration of Woodrow Wilson, Mexico since 1867, and the war of the nations—all of which give evidence of the up-to-dateness of the entire work.

Regarding the general plan of the eight main volumes on the history of antiquity, Europe, and America, it should be said that the account is in narrative form, the end sought being to present a narration of events that would be interesting and instructive to the general reader. The style is clear and attractive and the narration is interspersed with interesting anecdotes and descriptions. The material in each volume has been selected with much care, emphasis being given to those movements in the past that have contributed in the largest measure to the progress of civilization. Art, literature, and industries receive relatively more attention than military campaigns and battles. Since the work was reviewed by eminent historians in the various fields treated before it was published, its authenticity will not be seriously questioned.

Among the special features of the work are the illustrations and maps. There are in all thirty-two illustrations in color representing the world's greatest paintings. Half-tones, etchings, and photographs are scattered liberally through the volumes. With the aid of these illustrations the reader will be able to reconstruct in his imagination each age as it really was. There are a number of colored maps inserted here and there wherever they will be of assistance to the reader. Besides these there are many etchings containing plans of cities, buildings, and battlefields.

The work contains other features which one might designate as study or pedagogical aids. These consist of suggestions to the reader at the beginning of certain chapters, suggestive questions at the end of each chapter, lists of authentic works, chronological summaries, and lists of dates to be remembered.

The subtitle of the work is *Practical History of the World*. It will require but a cursory examination by the reader to see the justification of this subtitle. The truth of the matter is that if one should desire a self-directed reading-course in the history of the world, one could do nothing better than take up each volume in order and follow the direction contained therein. Furthermore, if one should desire to pursue a three years' course in the history of the world, one would do well to follow the outline given in one of the supplementary volumes, using the various main volumes to secure the information called for in the outline.

In conclusion the writer sees no reason why the work would not be of much value as reference material in regular courses in history. The narration of the world's history contained in the eight main volumes is something that history students could pursue with profit, for it too frequently occurs that students pursue the study of history for two or three years without ever securing a connected narration of the history they have been studying. The writer is almost radical enough to say that if the cost did not prohibit such a plan he would favor the use of such a series as the present one as a text in high-school history.

R. M. TRYON

III. CURRENT EDUCATIONAL PUBLICATIONS RECEIVED IN MARCH, 1918

A. GENERAL EDUCATIONAL THEORY AND PRACTICE

Accredited Junior Colleges, Circular of Information. Columbia, Mo.: University of Missouri Bulletin, 1918. Pp. 182.

CARY, C. P. *An Educational Survey of Janesville.* Madison, Wis.: Wisconsin State Department of Public Instruction, 1918. Pp. viii+329.

DAVIS, MARY C. *School and Home Gardening.* Philadelphia and London: J. B. Lippincott Co., 1918. Pp. xviii+353.

Emergency Training in Shipbuilding. Washington: Government Printing Office, 1918. Pp. 71.

FULMER, GRACE. *The Use of the Kindergarten Gifts.* Boston: Houghton Mifflin Co., 1918. Pp. xii+232.

GRACE, M. ANNIE, AND MONROE, EMMA C. *Lesson Plans in Fourth-Grade History.* Baltimore: Warwick & York, Inc., 1917. Pp. 155. $0.75.

JONES, EDWARD SAFFORD. *The Influence of Age and Experience on Correlations Concerned with Mental Tests.* Baltimore: Warwick & York, Inc., 1917. Pp. 89. $1.25.

KENDALL, CALVIN NOYES. *History in the Elementary School.* Chicago: Houghton Mifflin Co., 1918. Pp. vii+134. $0.75.

LYON, DARWIN OLIVER. *Memory and the Learning Process.* Baltimore: Warwick & York, Inc., 1917. Pp. 179.

MIZUNO, TSUNEKICHI. *The Kindergarten in Japan.* Boston: Stratford Co., 1917. Pp. ix+62+lxiv.

PINTNER, RUDOLF, AND ANDERSON, MARGARET M. *The Picture Completion Test.* Baltimore: Warwick & York, Inc., 1917. Pp. vii+101. $1.25.

RUGG, H. O. *Survey of the St. Louis Public Schools.* Vol. IV, *Finances.* St. Louis, Mo.: Board of Education, 1917. Paper. Pp. 241.

TERMAN, LEWIS, AND OTHERS. *The Revision and Extension of the Binet-Simon Scale for Measuring Intelligence.* Baltimore: Warwick & York, Inc., 1917. Pp. 179.

Texas History Teachers' Bulletin. Austin, Tex.: University of Texas Bulletin, 1918. Pp. 77.

WILSON, H. B. *Training Pupils to Study.* Baltimore: Warwick & York, Inc., 1917. Pp. 72. $0.50.

B. TEXTBOOKS FOR THE ELEMENTARY GRADES

BAILEY, CAROLYN S. *Tell Me Another Story.* Springfield, Mass.: Milton Bradley Co., 1918. Pp. xii+325.

BEST, SUSIE M. *Egypt and Her Neighbors.* New York: Macmillan, 1918. Pp. 185. $0.60.

———. *Merry England.* New York: Macmillan, 1918. Pp. 185. $0.60.

———. *Western Europe.* New York: Macmillan, 1918. Pp. 183. $0.60.

CARPENTER, FRANK G. *Around the World with the Children.* Chicago: American Book Co., 1917. Pp. ix+133.

DAVIDSON, ISOBEL. *Real Stories from Baltimore County History.* Baltimore: Warwick & York, Inc., 1917. Pp. 282.

FARMER, A. N., AND HUNTINGTON, JANET RANKIN. *Food Problems.* Chicago: Ginn & Co., 1918. Pp. 90.

HERVEY, WALTER L., AND HIX, MELVIN. *The Horace Mann Readers—Seventh Reader.* Chicago: Longmans, Green, & Co., 1918. Pp. 480. $0.80.

MILLER, ELIZABETH ERWIN. *The Dramatization of Bible Stories.* Chicago: The University of Chicago Press, 1918. Pp. 157. $1.00.

C. TEXTBOOKS FOR THE HIGH SCHOOL

BOLENIUS, EMMA MILLER. *Everyday English Composition.* Chicago: American Book Co., 1917. Pp. 340.

BRENKE, W. C. *Advanced Algebra.* New York: Century Co., 1917. Pp. 196. $1.25.

BRENKE, W. C. *Elements of Trigonometry with Tables.* New York: Century Co., 1917. Pp. 39.

CLIPPINGER, ERLE E. *Written and Spoken English.* Chicago: Silver, Burdett & Co., 1917. Pp. 561.

GOODWIN, MARY LOUISE, AND GUILL, KATE CORDON. *Students' Handbook of Composition,* Part II. New York: Macmillan, 1918. Pp. 38. $0.25.

GREENE, GEORGE G. *Pattern-Making Note-Book.* Peoria, Ill.: Manual Arts Press, 1917. Pp. 25. $0.25.

HART, ALBERT BUSHNELL. *New American History.* Chicago: American Book Co., 1917. Pp. 650.

OPDYCKE, JOHN B., AND DREW, CELIA A. *Commercial Letters.* New York: Henry Holt & Co., 1918. Pp. 395.

JESSERAND, BETH WARNER. *Food Preparation.* A laboratory guide and notebook for high-school classes in domestic science. Parts I and II. Peoria, Ill.: Manual Arts Press, 1917. Pp. 142.

PINE, FRANK W. (Editor). Dickens' *Oliver Twist.* New York: Macmillan, 1918. Pp. xxxiv+472. $0.25.

RENNERT, HUGO A. (Editor). *Selections from the Novelas Ejemplares.* New York: Henry Holt & Co., 1918. Pp. xii+218.

SAMPSON, CHARLES H. *Assignment Manual of Algebra.* Chicago: Benj. H. Sanborn & Co., 1917. Pp. viii+53.

SMITH, HERBERT R., AND MESS, HARRY M. *The Laboratory Study of Chemistry.* New York: Henry Holt & Co., 1918. Pp. 256.

STEEVER AND FRINK. *The Cadel Manual.* Philadelphia and London: J. B. Lippincott Co., 1918. Pp. 317.

STRAUB, BERNHARD C. (Editor). *Märchen und Sagen.* New York: Macmillan, 1918. Pp. xviii+220. $0.40.

THOMAS, CHARLES SWAIN (Editor). *Atlantic Narratives.* Boston: Atlantic Monthly Press, 1918. Pp. xxvi+350.

THORNDIKE, ASHLEY H. *The Elements of Rhetoric and Composition.* New York: Century Co., 1918. Pp. 363. $1.25.

TUFTS, JAMES H. *Our Democracy: Its Origins and Its Tasks.* New York: Henry Holt & Co., 1917. Pp. vi+327.

———. *The Real Business of Living.* New York: Henry Holt & Co., 1918. Pp. x+468.

D. PUBLICATIONS OF THE UNITED STATES BUREAU OF EDUCATION

Educational Directory, 1917–18. Department of the Interior, Bulletin No. 3, 1917. Government Printing Office, 1918. Paper. Pp. 200.

Lessons in Community and National Life. Department of the Interior, Bureau of Education. Community Leaflets 13, 14, 15, 16, 17, 18 (February and March). Paper. Pp. 32 each.

Monthly Record of Current Educational Publications. Department of the Interior, No. 52, December, 1917; Nos. 1 and 4, January and February, 1918. Pp. 27, 24, 21, respectively.

Physical Education in Secondary Schools. Department of the Interior, Bulletin No. 50, 1917. Government Printing Office, 1918. Paper. Pp. 24.

Summer Sessions of City Schools. By W. S. DEFFENBAUGH. Department of the Interior, Bureau of Education, Bulletin No. 45, 1917. Government Printing Office, 1918. Paper. Pp. 45.

The Preparation and the Preservation of Vegetables. Department of the Interior, Bureau of Education, Bulletin No. 47, 1917. Government Printing Office, 1918. Paper. Pp. 24.

E. MISCELLANEOUS PUBLICATIONS

BUTTERFIELD, GEORGE E. *Bay County—Past and Present.* Bay City, Mich.: C. & J. Gregory, Publishers, 1918. Pp. 212.

CORLEY, AMES HAVEN. *Amelia.* New York: Macmillan, 1918. Pp. xvi+300. $1.00.

FLINT, L. N. *Newspaper Writing in High Schools,* 1917. Paper. Pp. 42.

FUENTES, VENTURA, AND ELIAS, ALFREDO. *Manual de Correspondencia.* New York: Macmillan, 1918. Pp. xi+230. $1.00.

High-School Libraries, List of Books for, etc. Madison, Wis.: Issued by C. P. Carey, state superintendent. Pp. 209.

Iowa, Bulletin of the State Teachers College, Cedar Falls, Iowa. Extension Service Report, 1916–17. Part I, Vol. XVII. No. 4, April, 1917. Paper. Pp. 58.

Iowa, Bulletin of the State Teachers College, Cedar Falls, Iowa. Report of the Inside Survey. Part II, Vol. XVII, No. 4, April, 1917. Paper. Pp. 113.